



**The Intel International Science and Engineering Fair
Finalist Directory**

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SCIENCE SERVICE would like to recognize and thank the sponsors of this year's Intel ISEF, as well as extend our deep appreciation to the Detroit Host Committee, its financial supporters, and volunteers for their dedication and hard work. In addition to **Intel**, eight other organizations are presenting **Grand Awards**:

AARP Andrus Foundation presents Gerontology
Discover Magazine presents Team Awards
Environmental Protection Agency presents Botany and Environmental Science
Merck Research Laboratories presents Medicine and Health
Panasonic Consumer Electronics Company presents Mathematics
Scientific American presents Earth and Space Sciences and Engineering
Science News presents Team Projects

Special Awards are given by scientific, professional, industrial, educational, and governmental organizations in the form of scholarships, tuition grants, summer internships, scientific field trips, and equipment grants.

Intel Young Scientist Scholarship
Glenn T. Seaborg Nobel Prize Visit Award
European Union Contest for Young Scientists -
Presented by Discover Magazine
Ireland Young Scientist and Technology Exhibit -
Presented by Discover Magazine

Special Award Organizations

AARP Andrus Foundation
Acoustical Society of America
Albert B. Sabin Vaccine Institute
American Association for Artificial Intelligence
American Association for Clinical Chemistry
American Association of Physics Teachers and
The American Physical Society
American Astronautical Society
American Astronomical Society and
The Astronomical Society of the Pacific
American Chemical Society
American Committee for the Weizmann Institute of Science
American Geological Institute
American Indian Science and Engineering Society
American Intellectual Property Law Association
American Mathematical Society
American Meteorological Society
American Physiological Society
American Phytopathological Society
American Psychological Association
American Society for Horticultural Science
American Society of Agronomy
American Society of Pharmacognosy
American Speech-Language-Hearing Association
American Statistical Association
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Drexel University
Eastman Kodak Company
Endocrine Society
Entomological Society of America
IEEE
IEEE - Region 4
IEEE Computer Society
Indiana University
Institute of Food Technologists
International Amateur-Professional Photoelectric
Photometry
ITT/WEF Stockholm Junior Water Prize
Lawrence Tech University
Lehigh University
NACE International
National Aeronautics and Space Administration
National Ground Water Association
National Taiwan Science Education Centre
North American Benthological Society
Northeastern University
Optical Society of America
Patent and Trademark Office/U.S. Department of
Commerce/Patent and Trademark Office Society
Polytechnic University
Showboard, Inc.
Sigma XI, The Scientific Research Society
Society for Mining, Metallurgy, and Exploration, Inc.
Society for Technical Communication
Society of Environmental Toxicology and Chemistry
Society of Exploration Geophysicists
U.S. Air Force
U.S. Army
U.S. Coast Guard
U.S. Navy/U.S. Marine Corps
United Technologies Corporation
University of Detroit - Mercy
University of Sciences in Philadelphia
Vacuum Technology Division of the
American Vacuum Society
Weed Science Society of America

INTEL ISEF FINALIST DIRECTORY

Each # next to the finalist's name indicates previous ISEF participation

An * identifies non-competing projects

T: precedes the name of the Teacher-Sponsor of the Finalist

A T after the booth ID number indicates a Team Project

BEHAVIORAL AND SOCIAL SCIENCES

GRAND AWARDS PRESENTED BY:

INTEL

- BE001** **Effect of Electromagnetic Fields on Mice**
Jessica Ann Marie Cole, 18, Senior, Wewahitchka Junior/Senior High School, Wewahitchka, Florida, T: Dawn Alcorn
- BE002** **Inside Your Head**
Aayesha Siddiqui, 16, Sophomore, Manatee High School, Bradenton, Florida, T: Patricia L. Zalo
- BE003** **PNA for Fat**
Karen Kay Powell, 16, Sophomore, Lincoln Park Academy, Fort Pierce, Florida, T: Robert Chalkus
- BE004** **Family vs. Social Interaction in Moral Development**
Mehmet Zahid Cangul, 17, Junior, Pensacola High School, Pensacola, Florida, T: Dana Nagel
- BE005** **Altruism and the Tendencies Displayed in a Morally Challenging Situation**
Shelton Wiley Wright, 18, Senior, The Altamont School, Birmingham, Alabama, T: Kurt Kristensen
- BE006** **Creatology—Brain Science for the 21st Century**
Jason Max Mendivil, 16, Sophomore, Americas High School, El Paso, Texas, T: Juan Gonzalez
- BE007** **Age Factor**
Carolyn Mary Sloane, 16, Junior, Martin County High School, Stuart, Florida, T: Anne Stocker
- BE008** **Brain Storm**
Craig Allen Segura, 14, Freshman, Allen J. Ellender Memorial High School, Houma, Louisiana, T: Annette Parfait
- BE009** **Effect of Mental and Physical Stimulation on the Learning Ability of Mice: Phase II**
Katie Marie Mustard, 18, Senior, Astronaut High School, Titusville, Florida, T: Scott McCord
- BE010** **Sound to Sight—People's Cognitive Responses to Mozart's Music**
Erin Ann Stoesz, 16, Junior, Laramie Senior High School, Laramie, Wyoming, T: Mark Stansbury
- BE011** **Stimulation Station: Phase II**
Margaret Anne Mosher, 17, Junior, Gallup Catholic High School, Gallup, New Mexico, T: Kitty Mason
- BE012** **Can Goldfish Learn to Eat From a Certain Color Container by Using Operant Conditioning?**
William Eugene Griggs, III, 17, Junior, Bullock Memorial School, Union Springs, Alabama, T: Valarie Wilkerson
- BE013** **How Does Sleepiness Affect You? Impact of Sleep Deprivation on Mood and Cognitive Performance in Three Age Groups**
Elspeth Chase Montgomery, 15, Sophomore, Tom Clark High School, San Antonio, Texas, T: Marilyn Koch
- BE014** **Of Mice and Men Amazing Tales—How People Remember Their Routes**
Brian A. Camley, 14, Freshman, William J. Palmer High School, Colorado Springs, Colorado, T: Brad Bogard
- BE015** **Unseen Influences**
Rachel Elizabeth Hoard, 18, Senior, Grace Fellowship Christian School, Broken Arrow, Oklahoma, T: John Cook
- BE016** **Testing an Idea—Archaeological Interpretation and Dating of Waianae Valley House Site**
KeKai Kaleleiki, 17, Senior, Waianae High School, Waianae, Hawaii, T: Linda M. Gallano
- BE017** **Educational Bias**
Ryan Michael Miller, 16, Junior, Dallastown Area High School, Dallastown, Pennsylvania, T: Richard Cleary
- BE018** **Category Fluency Amongst Spanish and English Speakers With Alzheimer's and Normal Cognition**
Pedro Vidal Torres, 18, Senior, Miami Beach Senior High School, Miami Beach, Florida, T: Allyn Pond
- BE019** **City's Legacy of Every Day**
Jorge Alejandro Acosta, 17, Senior, Comercio Gral Martin Miguel de Guemes, Concordia, Entre Rios, Argentina, T: Gatto C. Humberto
- BE020** **Unprotected Children: Affective Needs in Children's Homes**
Maria Soledad Siegrist, 18, Senior, Nuestra Senora de Los Angeles, Concordia, Entre Rios, Argentina, T: Roldan De Minitondo Graciela Lile
- BE021** **Stress in Reproducing Wild Type and "Eyeless" *Drosophila melanogaster*: Two-Year Study**
Seth A. R. Adkison, 15, Sophomore, Riverside Military Academy, Gainesville, Georgia, T: Nicholas J. Scheman
- BE022** **Effects of Coping Mechanism Type on Physiological Stress Response and Resilience**
Emily Kennedy Anthes, 17, Junior, Yorktown High School, Arlington, Virginia, T: Michael Zito
- BE023** **Contrast and Luminance on Magnocellular-Defined Boundaries**
Samuel Yen-En Chang, 17, Junior, Lyndon B. Johnson High School, Austin, Texas, T: David Journeay
- BE024** **Beauty and the Bell Curve**
Stephanie Anne Hoopes, 17, Senior, Minerva High School, Minerva, Ohio, T: Michael R. Riley
- BE025** **Do Your Fears Change With Age?**
Sarah Angeline Chrisman, 17, Junior, Sarcoxie High School, Sarcoxie, Missouri, T: Jane M. Kutz
- BE026** **Gender and Politics—Are Americans Ready for Mom to Be President? Two-Year Study**
Aaron Michael Halegua, 18, Senior, Roslyn High School, Roslyn Heights, New York, T: Allyson Weseley
- BE027** **Does Age Affect a Child's Perception of Time?**
Amanda Marie Lee, 18, Senior, Walhalla Senior High School, Walhalla, South Carolina, T: Karen Hildebran
- BE028** **Visual Search—Novel Psychophysics for Pre-Attentive Vision**
Elizabeth Keiko Williams, 17, Senior, Palos Verdes Peninsula High School, Rolling Hills Estates, California, T: Eva Stamper
- BE029** **Effect of Sleep Restriction on the Cognitive Function of Elementary School Children: Phase II**
Jenifer Anne Jewkes, 16, Junior, Carbon High School, Price, Utah, T: Alayne Carillo
- BE030** **What Kids Need to Succeed—Media Influence: Three-Year Study**
Stephanie Michelle Vanelli, 17, Junior, Victoria High School, Victoria, Texas, T: Edith Barnhart
- BE031** **Tea Time—Effects of Caffeine on the Short-Term Performance of High School Athletes**
Lacey Anne Millet, 17, Junior, Lutchter High School, Lutchter, Louisiana, T: Philip Creel
- BE032** **Advantage of Ambidextrous People in Cognitive Reasoning**
Ayotunde Olumide, 17, Junior, Western High School, Baltimore, Maryland, T: Starletta Jackson

- BE034 The Mold We're Pressed to Fit—Influence of Societal Perceptions on Financial Status and Race**
Laura Elizabeth Smith, 15, Freshman, Renaissance High School, Detroit, Michigan, T: Neelam Patel
- BE035 Attraction of Teddy Bears With Child-Like Features vs. Teddy Bears That Look Like Real Bears**
Megan Leah Goins, 14, Freshman, Renaissance High School, Detroit, Michigan, T: Neelam Patel
- BE036 Computer-Simulated Evolution**
Jesse Sol Levinson, 16, Junior, Crystal Springs Uplands School, Hillsborough, California, T: Richard A. Drew
- BE037 Previous Experience Influences Adolescent CVR to Video Games**
Michael J. Evans, 19, Senior, Catholic High School, Huntsville, Alabama, T: Nancy McIntyre
- BE038 Autonomous Nervous System Response**
Alissa E. Prince, 18, Senior, Escola Americana de Campinas, Campinas, Sao Paulo, Brasil, T: Vivian H. Schlesinger
- BE039 Gender Effects on Story Comprehension and Preference**
Sarah Anne Creson, 18, Senior, Glendale High School, Springfield, Missouri, T: Sylvia A. Spear
- BE040 Bright Idea—Light Affects Academic Performance**
Amilia Notah, 16, Junior, Grants High School, Grants, New Mexico, T: Shelby Alexander
- BE041 Patterns, Pressure and Preference—Influence of Social Pressure and Mathematical Patterns on Musical Preference in Adolescents**
Kathy Hsinjung Li, 17, Junior, Plano Senior High School, Plano, Texas, T: Karen Shepherd
- BE042 Alternative to "Big Brother"—Investigation of Monitoring—Style Effectiveness: Two-Year Study**

Alexandra Nicole Yurkovic, 17, Senior, Mount Saint Joseph Academy, Flourtown, Pennsylvania, T: Stephanie Leonards
- BE043 Actual and Perceived Noise Exposure in Teenage Boys and Girls: Phase II**
Shannon Lea Goebel, 17, Senior, Ursuline Academy, St. Louis, Missouri, T: Marie C. Sherman
- BE044 Stress and Teaching**
Carlos Maximiliano Senci, 18, Senior, Martin Miguel de Guemes, Bahia Blanca, Buenos Aires, Argentina, T: Beatriz Teresa Gazzola
- BE045 Got Sleep? Affects of Varying Amounts of Sleep in Everyday Activities**
Kara Rene Crouch, 16, Sophomore, Mason High School, Mason, Texas, T: Bonnie Schmidt
- BE046 What Do You See When You See It?**
Juan Jose Ferro, 16, Sophomore, Instituto Padre Juan Muzio, Trelew, Chubut, Argentina, T: Adrian O. Baraibar
- BE047 Car Stereos—Cause for Alarm?**
Candyce Kay Hecker, 16, Junior, Dickinson High School, Dickinson, North Dakota, T: Melanie Kathrein
- BE048 Group Conformity**
Kathryn Barbara Hardy, 17, Junior, Beach High School, Beach, North Dakota, T: Kathryn L. Uttech
- BE049 Perceptions of Our World—Brain Dominance and Perception**
Rachel Ann Peterson, 16, Sophomore, Las Vegas Academy High School, Las Vegas, Nevada, T: Geri Anderson-Saxton
- BE050 Far Away From Home**
Maria Eugenia Rodriguez, 17, Junior, Instituto Padre Juan Muzio, Trelew, Chubut, Argentina, T: Adrian O. Baraibar
- BE051 Effects of Chemicals on Insect Behavior and Physiology**
Roberta Michelle Gonzalez, 16, Junior, Sunnyside Senior High School, Sunnyside, Washington, T: Joyce E. Stark
- BE052 At the Beginning of the New Millennium a Warning Sign—Depression in Adolescents**
Federico Emanuel Iosa, 16, Sophomore, Esc. de Comercio "Republica de Panama", Concepcion, Tucuman, Argentina, T: Ricardo G. Rodriguez
- BE301T Affect of Classical Music on Living Things**
Katie Joy Kingdon, 15, Freshman
Emily Jane LeBlanc, 14, Freshman
Heather Hornsby, 15, Freshman
Houma Junior High School, Houma, Louisiana
T: Brenna Barthel
- BE302T The Write Stuff—Improvement of Writing Skills**
Brian Charles Hardy, 16, Sophomore
Sarah Elizabeth Wolff, 16, Junior
Cheyenne Central High School, Cheyenne, Wyoming
T: Sherrie McDowell
T: Robert Hodges
- BE303T Effects of Visual Distractions on Hearing Acuity of Preadolescents**
Christopher James Lauten, 15, Freshman
Matthew William Sand, 15, Freshman
Lake Highland Preparatory School, Orlando, Florida
T: Christi Tamayo
- BE304T Luck or Diligence—Examination of Differences in Locus of Control**

Sarah Elizabeth Guffey, 17, Junior
Jonathan Carr McDaniel, 18, Senior
Robert G. Neal, 17, Senior
Nettleton High School, Jonesboro, Arkansas
T: Karen Ladd
- BE305T Eyewitness**
Seth Jon Rizzuto, 17, Junior
Brooke Elizabeth Roussel, 17, Junior
Lutcher High School, Lutcher, Louisiana
T: Philip Creel
- BE306T Personality by Birth**
Amanda Leigh McGregor, 15, Sophomore
Ashley Mae Hall, 15, Sophomore
Henrietta High School, Henrietta, Texas
T: Doug Underwood
- BE307T Does the Major Histocompatibility Complex Play a Role in the Mate Selection of Humans?**
Natalie Rose Haddox, 18, Senior
Kari Arrielle Baldonado, 18, Senior
Tahlequah Senior High School, Tahlequah, Oklahoma
T: Vickie Elliott
- BE308T Eva Perón: A Woman...A People**
Sonia Alejandra Maidana, 18, Senior
Gonzalo Gabriel Siebenhard, 18, Senior
Patricio Cesar Sieber, 18, Senior
Colegio de Cerrito, Cerrito, Entre Rios, Argentina
T: Miriam A. Hernandez
- BE309T Me...A Politician?**
Maria Virginia Grosso, 14, Freshman
Noelia Sofia Macagno, 14, Freshman
Pablo A. Pizzurno Institute, Hernando, Cordoba, Argentina
T: Maria T. Dellamaggiore
T: Maria Teresa Dellamaggiore
- BE310T How Reaction Time Differs With Age**
Sanin Ahmed Adnan, 15, Sophomore
Robert Benjamin Cobbins, 16, Sophomore
Oakton High School, Vienna, Virginia
T: Cheri Faley
- BE311T Cross Cultural Descriptive Analysis—Gender Stereotyping Between Children in Long Island and the Czech Republic**

Jon Louis Calluzzo, 18, Senior
Edward Kim, 18, Senior
Manhasset Junior-Senior High School, Manhasset, New York
T: Peter Guastella
- BE312T New Challenge**
Bernardita Maria Julieta Portillo, 18, Senior
Emiliano Luis Esmoris, 16, Senior
Luciana Betina Beatriz Romero, 20, Senior
Escuela de Educacion Media No. 2, Zarate, Buenos Aires, Argentina
T: Gustavo G. Coria
T: Gustavo Gabriel Coria
- BE313T Assessing High School Students' Knowledge About Breast Cancer Through a Symposium**
Jared Avrum Frankel, 17, Junior
Mitchell Slade Kase, 17, Junior
Plainview-Old Bethpage John F. Kennedy High School, Plainview, New York
T: Mary Lou O'Donnell

- BE314T Too Old or Too Young to Drive? Survey on Driving Restrictions**
D. Tamotsu Iwashii, Jr., 17, Junior
Desiree Luana Kay, 17, Senior
Kristin Noelani Yukiko Kihune, 17, Senior
Kamehameha Secondary School, Honolulu, Hawaii
T: Larry Mordon
T: Sandy Young
- BE315T What Do Adults Think About Animal Use in Laboratories?**
Jose Johel Monge, 17, Junior
Marimar Rivera, 16, Junior
Colegio San Antonio, Rio Piedras, Puerto Rico
T: Elsie G. Allende
T: Elsie Garcia Allende
- BE316T Multiplying With Melody: Four-Year Study**
Jessica Marie Oeth, 16, Junior
Jessica Lauren Grillo, 17, Junior
Margaret Elizabeth Wimmer, 17, Junior
Ogden High School, Ogden, Iowa
T: John Emerson
- BE317T New Vacuum Injection Technique on the Inhibition of Tyrosine Hydroxylase in *Drosophila melanogaster***
Thomas Fleming Kollar, 18, Senior
Benjamin Alan Oyler, 17, Junior
Jeremy Patrick Stovall, 16, Junior
Knoxville Catholic High School, Knoxville, Tennessee
T: Lisa Reece
- BE318T South Transandean Railroad Project and its Regional Economic Impact**
Luciano Sebastian Simonelli, 16, Senior
Maria Constanza Aquino, 16, Senior
Escuela de Educacion Media No. 5, Punta Alta, Buenos Aires, Argentina
T: Maria I. Basile
- BE319T Twin Telepathy—Truth or Tale?**
Rachel Renae Hicks, 15, Freshman
Megan Marjerie Hicks, 15, Freshman
Champlin Park High School, Champlin, Minnesota
T: Randal Smasal
- BI007 Epiregulin RNA Expression in Hypertrophic Rat Hearts**
Ashleigh Elizabeth Hermansen, 17, Senior, Spruce Creek High School, Port Orange, Florida, T: Ruth Von Nieda
- BI008 Effects of UV Radiation on Levels of Thymine Dimers in *Artemia* Hatched in Levels of Oxygen-Free Radicals: Five-Year Study**
Justin J. Coran, 17, Junior, Palm Bay High School, Melbourne, Florida, T: Michael O'Donnell
- BI009 Determination of the Amino Acid Sequence of p-80 Coilin in Rats**
Amy Beth Saltzman, 17, Junior, Hathaway Brown School, Shaker Heights, Ohio, T: Patricia K. Hunt
- BI010 Super Collagen**
Katherine Elizabeth Geist, 17, Senior, Bay High School, Panama City, Florida, T: Coleen Pemberton
- BI011 Cloning and Characterization of Novel Isoforms of Telomere Repeat Binding Factors**
Debra Ting Hsiung, 15, Sophomore, Northside Health Careers High School, San Antonio, Texas, T: Alan Y. Sakaguchi
- BI012 Estrogen Hormone Stimulates Gap Junction Mediated Intercellular Communication in Osteocytes**
Kan Zhang, 17, Junior, Northside Health Careers High School, San Antonio, Texas, T: Rajee Jhyagarajan
- BI013 Understanding the Apoptotic Mechanism in IDDM**
Swati Mylavarapu, 16, Junior, Eastside High School, Gainesville, Florida, T: Debbie Courtney
- BI014 α -Erythroid Spectrin and Ubiquitin in Astrocyte Centrosomes of Rat Hippocampus *in vitro***
Victor Charles Bailey, 16, Sophomore, Cottage Hill Christian Academy, Mobile, Alabama, T: Richard Ranew
- BI015 Alpha Lipoic Acid as a Co-Factor for Free Radical Suppression in Fruit: Three-Year Study**
Anna Nicole Hadd, 16, Junior, Baker High School, Baker, Florida, T: Gwynn Blanchard
- BI016 Computational Analysis of the Internal Order of Proteins**
Elizabeth Anne Faist, 18, Senior, Sarasota High School, Sarasota, Florida, T: Wallace Black
- BI017 Screening for Protease Inhibitors to Block HIV Maturation and Infectivity**
Shalini Therese Low-Nam, 17, Senior, Boulder High School, Boulder, Colorado, T: Tamsen K. Meyer
- BI018 Effects of Intact Molecules of Parathyroid Hormone on the Hypocalcemic Conditions of Cantharidiasis *via* Ova Injection**
Candice Marie Noe, 18, Senior, Henrietta High School, Henrietta, Texas, T: Doug Underwood
- BI019 Degradation of Plasmid DNA in Rat Plasma**
Kathleen Crucet, 17, Junior, American Senior High School, Hialeah, Florida, T: Cristin Calder
- BI020 Purification of *Endogenous ouabain* From Adrenal Cortical Cells**
Amanda Lynn Stevens, 17, Senior, North County High School, Glen Burnie, Maryland, T: Stacie Moon
- BI021 Physiological and Immunological Changes in Hypercholesterolemic Rats Treated With HMG CoA Reductase Inhibitors: Two-Year Study**
Katherine Ann Brezina, 17, Junior, Coral Reef Senior High School, Miami, Florida, T: Barbara Zieler
- BI022 Analysis of the Human NBR1/BRCA1 Promoter**
Amber Nichole Cockburn, 17, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Sheryl A. Thomas
- BI023 Role of Interdomain Interactions in the Activation Mechanism of G Proteins (Using Computer Modeling)**
Eugene M. Simuni, 18, Senior, Midwood High School at Brooklyn College, Brooklyn, New York, T: Jay Touger
- BI024 Nuclear Localization Signal in the C-Terminal Basic Region of MUIFN π**
Seema M. Meraj, 17, Senior, Midwood High School at Brooklyn College, Brooklyn, New York, T: Jay Touger
- BI025 Determination of a Nuclear Localization Signal in Integrase Interactor 1 (*INI1*)—Potential Therapeutic Site for HIV-1 Integration**
Monica Sircar, 17, Senior, Bronx High School of Science, Bronx, New York, T: Valerie Reidy

BIOCHEMISTRY

GRAND AWARDS PRESENTED BY:

INTEL

- BI001 Effects of Temperature on Decomposition of Muscle Tissue by *Sarcophaga bullata***
Adam Douglas Pate, 15, Freshman, Leesburg High School, Leesburg, Florida, T: Sandra Good
- BI002 Can the Analysis of Oxygen Demand Show a Possible Loss of Marine Organisms?**
Matthew Blane Blevins, 17, Senior, Palatka High School, Palatka, Florida, T: Brian Hammonds
- BI003 Detection of Novel Centrosome Dynamics in Living Cells**
Zhang Pan, 18, Senior, Century High School, Rochester, Minnesota, T: Cheryl Moertel
- BI004 Building a Better Mouse Vector—New HIV-1 Lentiviral Vector for Enhanced Gene Expression in Murine Cells**
Brandon Michael Palmen, 16, Sophomore, Mayo High School, Rochester, Minnesota, T: Dale Owens
- BI005 Enhanced Gel Barrier on French Fry Oil Absorption During Deep-Fat Frying: Four-Year Study**
Gregory Mark Striemer, 16, Junior, Lake Park/Audubon High School, Lake Park, Minnesota, T: Michael Wichmann
- BI006 Investigation of Zinc Binding on Glutamate Dehydrogenase: Phase III**
Jaclyn Marie Bailey, 18, Senior, Belle Plaine High School, Belle Plaine, Minnesota, T: Laura Weiers

- BI026** **Role of Reactive Oxygen in Vascular Smooth Muscle Cells**
Sanket Nayyar, 17, Junior, Martin Luther King, Jr. Magnet High School, Nashville, Tennessee
- BI027** **RAPD PCR for Differentiation of *Xylella fastidiosa* Strains**
Samuel Jan Chang, 17, Junior, Starr's Mill High School, Fayetteville, Georgia, T: Dan Gant
- BI028** **Cerocie Wine**
Kedisha Anmarie Powell, 18, Junior, Knox Community College, Clarendon, Jamaica, T: Erol C. Miller
- BI029** **Relationship Between Caspase-3 Expression in Malignant and Normal Lymphoblasts**
Dave Calhoun Marrs, 18, Senior, Springdale Senior High School, Springdale, Arkansas, T: Wendell G. Ridenour
- BI030** **Preparation of a Carcinogen—DNA Adduct Standard for Use in Human Exposure Biomonitoring**
Stephen Patrick Kadlubar, 17, Senior, White Hall High School, Pine Bluff, Arkansas, T: Richard Gill
- BI031** **Precious Polyyps**
Daniel Ralph Ruedy, 17, Senior, W.T. Woodson High School, Fairfax, Virginia, T: James S. Butt
- BI032** **Arylamine N-Acetyltransferase Inhibition via Ibuprofen in *E. coli***
Vinh H. Do, 17, Junior, John B. Connally High School, Austin, Texas, T: Pat Merkord
- BI033** ***Mycobacterium tuberculosis* Small Heat Shock Protein HSP16.3 Expressed in *E. coli*—Inconsistency Between Thermoprotection Effects and Molecular Chaperone Activities**
Jing Li, 17, Junior, Beijing No. 4 High School, Beijing, P.R., China, T: Zengyi Chang
- BI034** **Expression of *Arabidopsis* HAT GCN5 in Yeast**
Nathan Dale Lord, 16, Sophomore, Saginaw Arts and Sciences Academy, Saginaw, Michigan, T: Gary Barker
- BI035** **Food for the New Millennium—Bacterial, No Beef Protein: Phase II**
Jessica Marie Lopez, 17, Senior, Florencia Garcia High School, Las Piedras, Puerto Rico, T: Maria Lopez Pena
- BI036** **Role of Glial Growth Factor in Differentiation of Cortical Progenitor Cells**
Vignesh Mohan Aier, 17, Senior, Westlake High School, Thornwood, New York, T: Michael Bluegrass
- BI037** **Heme-Oxygenase 1 Reduces Cell Death in Cold Storage**
Ameen Abdulla Salahudeen, 17, Senior, Madison Central High School, Madison, Mississippi, T: Janet Boswell
- BI038** ***Bryophyllum pinnatum*—Homemade Remedy or a Natural Potential Poison?**
Juan Carlos Aponte, 15, Sophomore, Luis Munoz Marin High School, Barranquitas, Puerto Rico, T: Leticia Rodriguez Ortiz
- BI039** **Omega-3 Fatty Acids in the Livers of Ling Burbot Fish**
Michael Thomas Brady, 18, Senior, Malta High School, Malta, Montana, T: Marida J. Demarais
- BI040** **Electromagnetic Field Induced Activation of Heat Shock Response and its Influence on Apoptosis: Two-Year Study**
Bradley Dale LeBlanc, 17, Senior, Grenville Christian College, Brockville, Ontario, Canada, T: Karen Anderson
- BI041** **Pectinase-Enhanced Production of Essential Oil From *Cymbopogon citratus***
Karen Kristi Jardin Cinco, 16, Sophomore, Agusan del Sur National High School, Agusan del Sur, Philippines, T: Marilou B. Galarse
- BI042** **Phycobilins—Enhancing the Process of Photosynthesis**
Kristen Hinano Lee Oleyte, 18, Senior, Kamehameha Secondary School, Honolulu, Hawaii, T: Lawrence Mordan
- BI043** **DNA Computation of a Subset Sum: Phase II**
Joel Lewis Stevens, 17, Junior, The Academy of Science and Technology, Conroe, Texas, T: Larry Walker
- BI044** **Overexpression of Human Blood Coagulation Factor XII in *E. coli* Using Polymerase Chain Reaction and pGEX-2T Plasmid Vector Genetic Engineering Technique**
Vivasvat Kaul, 15, Freshman, Macomb High School, Macomb, Illinois, T: Brian O'Neill
- BI045** **Antibiotic Resistance—Fight Against Bacteria**
Debarshi Mustafi, 15, Sophomore, Kenwood Academy, Chicago, Illinois, T: Marilyn Havlik
- BI046** **Mechanism of Cytotoxicity of Sphingosine and its Derivatives on *Candida albicans***
Amal Kumar Dorai, 17, Senior, Lexington High School, Lexington, Massachusetts, T: Judith Masselam
- BI047** **Occurrence of Putative TR1 Taste Receptor in Mammals**
Amanda Fleming Fox, 16, Sophomore, Spring Valley High School, Columbia, South Carolina, T: Marilyn Senneway
- BI048** **Immunocytochemical Quantification of Connexin Activity in Post-Glycoprotein Enhanced PC-12 Tissue**
Asha Nicole-Sarita Swem, 17, Senior, Gold Beach High School, Gold Beach, Oregon, T: Joel M. Kuper
- BI049** **Resveratrol on NIH 3T3 Cell Proliferation—"The Secret Behind the French Paradox"**
Anupama Kotha, 15, Freshman, C. Leon King High School, Tampa, Florida, T: Aimee Laskowski
- BI050** **Molecular Analysis of Putative Hybrids From Protoplast Fusion in *Porphyra***
Zachary Brandon Stone, 18, Senior, Punahou School, Honolulu, Hawaii, T: Michael Hu
- BI051** **B-Cell Lymphoma Genetic Vaccine—Single Chain Antibody Fused With Human Macrophage-Derived Chemokine**
Bryan Allen Haines, 17, Senior, Catoctin High School, Thurmont, Maryland, T: Laura Jaworski
- BI052** **Nitric Oxide in the Proliferation of Endothelial Cells**
Nadia Beatriz Rivera, 15, Sophomore, Colegio Marista, Guaynabo, Puerto Rico, T: Isabel Perez
- BI053** **Which Antioxidant Produces the Most Superoxide Dismutase in *Drosophila melanogaster*? Two-Year Study**
Rachel Leah Shpringer, 16, Junior, Redwood High School, Larkspur, California, T: Millie Hackworth
- BI054** **Effect of pH and DNA Migration During Electrophoresis**
Kenneth Obinna Matthew, 15, Junior, Western High School, Detroit, Michigan, T: Alan Labostrie
- BI055** **Synthesis of Fumagillin Analogs as Potential Antimicrobial Agents: Phase II**
Ross Sullins Scruggs, 17, Senior, Jefferson County International Baccalaureate School, Birmingham, Alabama, T: Trudy Anderson
- BI056** **Optimization of Transfection by FuGENE 6**
Rushina Cholera, 16, Junior, White Station High School, Memphis, Tennessee, T: Doris Hawkins
- BI057** **Diabetes—Carbohydrate Connection: Two-Year Study**
Bryanna L. Glod, 16, Sophomore, Mohawk Trail Reg High School, Shelburne Falls, Massachusetts, T: David Roberts
- BI058** **Isolation and Cloning of an *Arabidopsis thaliana* Matrix Metalloprotease for *E. coli* Expression**
Mark Arthur Levy, 18, Senior, Roanoke Valley Governors School for Science and Technology, Roanoke, Virginia, T: John Kowalski
- BI059** **Biochemical Characterization of E-Type ATPases—Quaternary Structures of Potato Apyrase and Yeast Apy1p: Phase II**
Jacqueline Ou, 16, Junior, Lexington High School, Lexington, Massachusetts, T: Nicholas Tzimopoulos
- BI060** **Sensitivity of *Bacteroides forsythus* to the Antibiotic Fosfomicin**
Ryan Joseph Montoya, 16, Junior, Boston Latin School, Boston, Massachusetts, T: Gordon Estabrooks
- BI061** **Effects of Nerve Growth Factor on Sensory Neuron Growth and Survival**
Edward S. Yip, 17, Senior, Fox Chapel Area High School, Pittsburgh, Pennsylvania, T: Greg Schubert
- BI062** **Optimization of Plasmid—DNA Yields for Gene Therapy**
Karen Leanne Beckman, 16, Junior, Jamestown High School, Jamestown, North Dakota, T: Phil Kroeber
- BI063** **Cancer Killer**
Michael Zhen-Yu Tong, 17, Senior, Marianopolis College, Montreal, Canada, T: Rocco Iafigliola
- BI065** **Innovative Method of Extraction and Analysis Estimating Growth by Comparing RNA to DNA Ratios**
Laura M. Newman, 17, Senior, Olympic Heights Community High School, Boca Raton, Florida, T: Janice Faustin

- BI066 Effects of Methoxylated and Traditional CPAS and X-1000 Ice Blocker on the Cryopreservation of *Papilo glaucus*: Three-Year Study**
Blake Evan Reese, 18, Senior, Spanish River Community High School, Boca Raton, Florida, T: Susan Devick
- BI067 Modification of a Hydrogen Peroxide Solution to Decrease Susceptibility to Breakdown by Catalase**
Amber Lea Abercrombie, 18, Senior, Alamogordo Senior High School, Alamogordo, New Mexico, T: Kevin Blackstone
- BI068 Effect of Electric Fields on Yeast**
Candy Wah Yu, 17, Senior, John F. Kennedy High School, Sacramento, California, T: Steve DeGusta
- BI069 Ritalin and Hyperglycemia**
Sarah K. Fayad, 14, Freshman, Mesa View Junior High School, Farmington, New Mexico, T: Ann Gattis
- BI070 Differential Gene Expression in Pituitaries of Young Proestrus and Middle-Aged Persistent Estrus Rats**
Anna Ngo, 17, Senior, Alhambra High School, Alhambra, California, T: Duane Nichols
- BI301T Determinants of Soggy Cereal**
Crystal Rose Hostetter, 16, Sophomore
Jessica Lynn Cordingly, 16, Sophomore
Hot Springs County High School, Thermopolis, Wyoming
T: Jeb Schenck
- BI302T Biological and Chemical Evaluation of Novel Synthetic Mechanisms Employed in the Treatment of Excess Iron**
Allison Joy Ferber, 17, Junior
Lesley Ann Jamieson, 17, Junior
Lake Highland Preparatory School, Orlando, Florida
T: Judith F. Legault
T: Judith Legault
- BI303T Method of Cancer Detection—Upregulation of Cyclin D1 in Cancer Cells**
Sohail Reza Ahmed, 18, Senior
Hans Orejuela, 17, Senior
Midwood High School at Brooklyn College, Brooklyn, New York
T: Jay Touger
- BI304T Mitochondrial Genome of Zebrafish, *Danio rerio***
Dana Eve Berkowitz, 16, Junior
Francesca Marie Pignataro, 16, Junior
Rachel Merideth Shoichet, 16, Junior
Plainview-Old Bethpage John F. Kennedy High School, Plainview, New York
T: Mary-Lou O'Donnell
- BI305T Determining Effective Method of dsRNA Administration in *Drosophila melanogaster***
Eugenia Tsai, 16, Junior
Una Au, 16, Junior
Manhasset Junior-Senior High School, Manhasset, New York
T: Peter Guastella
- BI306T Repellent Property of Citric Peels and Petals Against Mosquitoes**
Carlos Alberto Davila, 16, Junior
Ricardo Javier Davila, 17, Senior
Colegio De La Salle, Bayamon, Puerto Rico
T: Maritza Rodriguez de Vega
- BI307T Are We Able to Inhibit Infection of Human Cell Lines by HRV?**
Ronald Valentine Williams, 17, Junior
Jennifer Lynn Wilwert, 17, Junior
Cardinal Ohara High School, Springfield, Pennsylvania
T: Katherine Lansing
- BI308T Cereal Killer?**
Elizabeth Crawford, 18, Senior
Conor James Higgins, 17, Senior
Angela Michelle Williams, 18, Senior
Hazelwood Integrated College, Belfast, Northern Ireland
T: Dr. Seamus Quinn

- BI309T Size and Metabolism**
Julie Ann Buffington, 17, Senior
Franco Alberto Moreno, 18, Senior
April Ann Salcido, 18, Senior
Homer Hanna High School, Brownsville, Texas
T: Nelda Rogers

BOTANY

GRAND AWARDS PRESENTED BY: ENVIRONMENTAL PROTECTION AGENCY

- BO001 Pathogenic Control of Tropical Soda Apples: Four-Year Study**
Helen Irene Wiersma, 18, Senior, Okeechobee High School, Okeechobee, Florida, T: Joe Arnold
- BO002 Vaccine Genes in Tomato—Developing Tissue Culture System**
Melisa Manoj Shah, 16, Junior, Warner Robins High School, Warner Robins, Georgia, T: Rhonda Parker
- BO003 Evolutionary Maintenance of the Gynodioecious Breeding System in the Clonal Plant *Hydrocotyle bonariensis***
Michael David Tibbetts, 18, Senior, Palm Harbor University High School, Palm Harbor, Florida, T: Randy C. McGonegal
- BO004 Antimicrobial Effectiveness of Folk Medicines**
Bryant Barber Cannon, 16, Sophomore, The Altamont School, Birmingham, Alabama, T: Sophia Clifford
- BO005 PVY Spread in Potatoes**
Nathaniel R. Davidson, 17, Junior, Monte Vista Senior High School, Monte Vista, Colorado, T: Gary Wilkinson
- BO006 Factors Effecting the Transformation of Crimson Clover**
Rushi S. Patel, 17, Senior, Lecanto High School, Lecanto, Florida, T: Ronald Worthington
- BO007 Helping Hay Fever Sufferers With Plant Growth Regulators**
Aimee Celeste Lagarde, 17, Junior, Terrebonne High School, Houma, Louisiana, T: Julie Brown
- BO008 Effect of Elevated CO₂ Concentrations on the Growth and Development of *Phaseolus limensis***
Christopher William Ammen, 16, Sophomore, Palm Bay High School, Melbourne, Florida, T: Michael O'Donnell
- BO009 Herbicidal Effects of Tannic Acid Extracted From *Quercus borealis* Sawdust on the Germination of Weed and Crop Seeds in a Plot Study**
Sarah Adeline Kessans, 16, Junior, Eastern High School, Pekin, Indiana, T: Sharon McElroy
- BO010 Gravitation's Effect on Plant Life**
William Lee Stark, 16, Sophomore, Wetumpka High School, Wetumpka, Alabama, T: Virginia Vilardi
- BO011 Effectiveness and Precision of Alternative Transgenic Pest Control Methodology Using *Bacillus thuringiensis* in Corn Plants**
Sonali R. Hippalgaonkar, 16, Sophomore, Lake Highland Preparatory School, Orlando, Florida, T: Judith F. Legault
- BO012 Effects of Fatty Acids on Transpiration and Temperature of *Phaseolus vulgaris* and *Pisum sativum*: Three-Year Study**
Christine Farley Jones, 18, Senior, Minnetonka High School, Minnetonka, Minnesota, T: William Keeler
- BO013 Back Off! Allelopathy and the Black Walnut Tree**
Darby Jo Hudspeth, 14, Freshman, Nettleton Junior High School, Jonesboro, Arkansas, T: Annette Holder
- BO014 Increasing Isoflavones—Sprouting for Health**
Katherine Anne Sammons, 16, Junior, Francis Howell High School, Saint Charles, Missouri, T: Ellen Zerr
- BO015 *Pleopeltis polypodioides* and the Presence of Moss**
John William Story II, 18, Senior, McLoud High School, McLoud, Oklahoma, T: Bruce A. Smith
- BO016 Determining Whether Length Affects Grass Growth**
Michael John Scott, 15, Sophomore, Immaculata High School, Somerville, New Jersey, T: Mary Ann Besitka

- BO017 Sex Organ Development and Interbreeding Mechanisms of *Cyathea spinulosa***
Yu-Jen Lee, 18, Senior, National Hsiu-chu Senior High School, Hsiu-Chu, Taiwan, Chinese Taipei, T: Peng Kuan-Huei
- BO018 Alfalfa Transformation—Senescence Gene: Phase II ##**
Scott Thomas Schuh, 17, Junior, Winona Senior High School, Winona, Minnesota, T: Jerry Foster
- BO019 UV Radiation on Corn: Phase V**
Aaron D. Ulland, 18, Senior, Austin High School, Austin, Minnesota, T: Harriet L.E. Ulland
- BO020 Investigation of Factors Affecting Billet-Cut Sugarcane**
Quin Elise Allain, 14, Freshman, Catholic High School, New Iberia, Louisiana, T: Donald Voorhies
- BO021 Can the Calcium Level in Plants Be Raised? Phase II #**
Kelly Richard McCuaig, 16, Sophomore, Happy High School, Happy, Texas, T: Leslie Philipp
- BO022 Photoperiod—Key to Controlling Productivity and Profits in Forages?**
Aaron Cole Richardson, 15, Sophomore, Walton High School, De Funiak Spgs, Florida, T: Elizabeth G. Yates
- BO023 Taxonomic Analysis of Anthurium Species Using Computer Assisted Pattern Analysis: Three-Year Study #**
Stephen Andrew Hedges, 16, Sophomore, Andean High School, Merrillville, Indiana, T: Kathryn Hedges
- BO024 Scotch Broom Eradication**
Jennifer C. Brennan, 18, Senior, Bellarmine Preparatory School, Tacoma, Washington, T: Ronald K. Nilsen
- BO025 Acidic Environmental Conditions on Fern Development and Sperm Viability**
Arie Anne Schiller, 14, Freshman, Central Lee High School, Donnellson, Iowa, T: Ernest Schiller
- BO026 Phytotoxic Actions of Nitrates**
Rebecca Lynn Harker, 15, Freshman, Ephrata Senior High School, Ephrata, Pennsylvania, T: Patricia Wee
- BO027 How Does the Leachate From Soil Affect Plants Grown Hydroponically? Two-Year Study**
Jimmy Bryan Randolph, 16, Sophomore, Hinckley-Finlayson High School, Hinckley, Minnesota, T: Donald Grice
- BO028 Effects of *Bacillus thuringiensis* on the Behavior of *Hippodamia convergens***
Latoya Maria Jones, 15, Freshman, Yazoo City High School, Yazoo City, Mississippi, T: Kim Patterson
- BO029 Irrigation Scheduling—Efficiency in Water Use**
John Lee Rowton, 19, Senior, Arkansas School of Mathematics & Sciences, Hot Springs, Arkansas, T: Shane Willbanks
- BO030 *Amphobotrytis ricini*—New Pathogen of *Euphorbia millii***
Ligia Isabel Acosta, 18, Senior, South Dade High School, Homestead, Florida, T: Pamela Schlachtman
- BO031 Effects of Root-Zone Temperature on Growth of Early Girl Tomatoes in Aquaculture System**
Erin Brianna Frackleton, 16, Junior, Jefferson Forest High School, Forest, Virginia, T: Cheryl Lindeman
- BO032 Degradation of *Cynodon dactylon* and *Stenotaphrum secundatum***
Kyle Eugene Conklin, 17, Junior, C.H. Yoe High School, Cameron, Texas, T: Toni Lafferty
- BO033 Tissue Culture of the *Cymbidium ensifolium***
Tao Fang, 18, Senior, Tongxiang Senior High School, Tongxiang, Zhejiang, China
- BO034 Cloning of Methionine Sulfoxide Reductase in Fruits**
Ajita Shukla, 18, Senior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Alfred Lampazzi
- BO035 HSC-70-Induced Expression in Maize: Phase II #**
Katherine Suzanne Redding, 16, Junior, Cookeville High School, Cookeville, Tennessee, T: Kathy Shanks
- BO036 Our Forests—Our Future**
Tanisha Terry-Ann Lamont, 19, Senior, Knox Community College, Clarendon, Jamaica, T: Errol C. Miller
- BO037 Allelopathy—Back Off! Phase III**
Daniel Anders Campbell, 15, Freshman, Newark High School, Newark, Arkansas, T: Kathy A. Campbell
- BO038 "Juglone" Plant Benefaction of the Black Walnut Tree**
Shannon Leigh Smith, 17, Junior, West Lauderdale High School, Collinsville, Mississippi, T: Nettie Mayatte
- BO039 Night Application of 6-Benzylaminopurine for Increased Productivity in Commercial *Dendrobium* and *Oncidium* Orchid Culture**
Chandler A. Forrest, 15, Sophomore, Kapaa High School, Kapaa, Hawaii, T: Ray D. De La Pena
- BO040 Genetic Engineering Effects on *Glycine max***
Randy Lee Ray Scherer, 18, Senior, North High School, Evansville, Indiana, T: James M. Hollan
- BO041 Biolarvicide—New Breakthrough in Treating Dengue Mosquito Larvae**
Richard Brian Parungao Balmeo, 16, Freshman, San Roque High School, Nueva Ecija, Philippines, T: Yolanda Parungao-Balmeo
- BO042 Preventing Contamination in Hybrid Rice**
Nicholas Richard Long, 17, Junior, Clear Creek High School, League City, Texas, T: Barbara Morris
- BO043 Extending the Shelf-Life of *Rosa borbonianar*: Two-Year Study**
Tyler Shawn Ellis, 17, Junior, Stevens High School, Rapid City, South Dakota, T: Roberta Gaines
- BO044 Dust Effects on *Pinus elliottii* of Subtropical Pine Forest Region**
Tiffany Nichols, 17, Senior, Osbourn Park Sr High School, Manassas, Virginia, T: Mildred Modugno
- BO045 Effects of Lighting and Fertilization Levels on *Codiaeum variegatum***
Raven Necole Turner, 16, Sophomore, Hart County High School, Munfordville, Kentucky, T: Steve Kisler
- BO046 Development of *Musa acumminata* Diastase**
Edgardo Otero Cuevas, 14, Freshman, Colegio Maria Auxiliadora, Carolina, Puerto Rico, T: Mayra Santana
- BO047 KYO I**
Krystian Xavier Lopez Poitevin, 17, Senior, Colegio Maria Auxiliadora, Carolina, Puerto Rico, T: Mayra Santana Dastas
- BO048 Can Antacids Help *Phaseolus vulgaris* Grown Under the Effect of Acid Rain?**
Manuel A. Moreda, 15, Freshman, Colegio San Ignacio de Loyola, Rio Piedras, Puerto Rico, T: Wilma Rivera
- BO049 Effect of Electromagnetic Fields on Algae Cells**
Shanterra Dominique Anderson, 14, Freshman, Detroit High School for Fine and Performing Arts, Detroit, Michigan, T: Mike Mokdad
- BO050 CO₂'s Effect on *Philodendron* Root Growth**
Keith Dennis Lukasik, 16, Sophomore, Detroit Catholic Central H S, Redford, Michigan, T: Alan Barker
- BO051 Polyethylene Mulch Effects on the Physiology of *Phaseolus vulgaris*: Two-Year Study**
Paul Matthew Biedler, 15, Sophomore, Musselman High School, Bunker Hill, West Virginia, T: Karen J. Ash
- BO052 Effect of Salt on Different Varieties of Carrots**
Andrew McLeod, 14, Freshman, North Sydney Boys High School, Crows Nest, New South Wales, Australia, T: Julie Crowley
- BO053 Effect of Sildenafil Citrate in the Germination and Growth of *Phaseolus vulgaris***
Jose Antonio Diaz, 15, Freshman, Colegio San Ignacio de Loyola, Rio Piedras, Puerto Rico, T: Wilma Rivera
- BO054 Effects of Electricity on Plant Growth**
Jon Frank Winkeller, 16, Sophomore, Skyline High School, Mesa, Arizona, T: Virginia Domer
- BO055 Salt-Tolerant Mutant of the *Ceratopteris* Fern—Proposal for a New Direction in Seawater Agriculture**
Laura Marie Ernst, 18, Senior, Ursuline Academy, St Louis, Missouri, T: Marie Sherman
- BO056 How Farming Practices Affect Soil Nutrients and Forage: Phase II**
Matthew Ralph Haugen, 16, Sophomore, Griggs County Central High, Cooperstown, North Dakota, T: William Engel
- BO057 How Does Hydrogen Peroxide Affect Wheat Germination?**
Jennifer Jean Evanson, 16, Sophomore, Alexander High School, Alexander, North Dakota, T: Cassandra M. Gentry

- BO058 Effects of Varied Levels of pH in Soil on the Emergence of Wheat and Soybeans: Phase III**
Adam Richard Wohl, 15, Freshman, Central Campus Junior High School, Minot, North Dakota, T: Malinda Larson
- BO059 Do Different Fertilizers, Their Amounts and an Indoor vs. Outdoor Climate Change Affect Wheat? Phase IV**

Jake J. Ridl, 18, Senior, Trinity High School, Dickinson, North Dakota
- BO060 Do Various Types of Water Affect the Growth of *Abelmoschus esculentus*?**
Anna Anita Bagwell, 17, Junior, Gaffney Senior High School, Gaffney, South Carolina, T: Wendy D. Tindall
- BO061 Effect of *Juglans nigra* Husk Extract in *Lycopersicon esculentum* Toxicity and Murine Tumor Cell Proliferation Assays: Three-Year Study**

John Bennett Ball Korman, 16, Sophomore, Riverside High School, Greer, South Carolina, T: Karen Gillespie
- BO301T Effect of Fractionated Ionizing Radiation—Non-Lethal Cell Damage and Electromagnetic Fields on Arabidopsis**
Lauren C. Ball, 17, Junior
Kathleen E. MacMillan, 17, Junior
Lake Brantley High School, Altamonte Springs, Florida
T: Susan N. Behel
- BO302T What are the Rates of Cadmium Absorption in Corn Plants?**
Erin Belinda Enright, 16, Sophomore
Janelle Lorna Booth, 16, Sophomore
Timber Lake High School, Timber Lake, South Dakota
T: Gregory L. Garon
- BO303T Allelopathic Effects of Selected Weed Exudates on Germination and Early Growth of *Triticum aestivum* in Northern Toole County, Montana**
Jeremy John Brimhall, 17, Senior
Marshall Cole Overcast, 17, Junior
North Toole County High School, Sunburst, Montana
T: Lawrence Fauque
- BO304T Used the Best for Less—Turn Garbage Into Composed Fertilizer**
Theresa Kerry-Ann Williamson, 17, Junior
Barrington George Sinclair, 18, Junior
Omar Oneil Orridge, 19, Senior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- BO305T Weeds in Our Environment**
Yanique Kamiesha Hall, 17, Junior
Davian Barton, 20, Senior
Kevon Orin Simms, 19, Junior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- BO306T Effects of Anesthetics on Channel Systems in Soybean Plants: Two-Year Study**

Travis Michael Beamish, 18, Senior

Avaleigh Nora Milne, 18, Senior
Kingston Collegiate & Vocational Institute, Kingston, Ontario, Canada
T: Chris VanLuven
- BO307T Histochemical Tests and Antibacterial Effect of Oak-Leaf Fern (*Drynaria quercifolia* (Linn.) J.Sm) Extracts**
Osmund Nino Beltran Amoroso, 17, Sophomore
Ray Ian Chris Yago Oco, 17, Sophomore
Leo Marconi Reserva Carrillo, 16, Sophomore
T: Luzminda Gurrea
- BO308T Characteristics of Corn That Aid in Tolerance to Ultra-Violet Radiation**
Edwin B. Schultz, 18, Senior
Richie Fredrick Weers, 18, Senior
Midland High School, Varna, Illinois
T: Eric Rittenhouse
- BO309T Environmental Stresses on Vegetables**
Serena Zibetti, 14, Freshman
Christina Rachael Martinez, 15, Freshman
Provo High School, Provo, Utah
T: Ryan Rassmussen

- BO310T Transmission of Phyto Pathogens by Insect Vectors**
Sherri Amelia Hook, 18, Senior
Bao-Huong Thi Nguyen, 17, Senior
John B. Connally High School, Austin, Texas
T: Pat Merkord
- BO311T Possible Anti-Viral Properties of *Azadirachta indica* in Suppressing Tobacco Mosaic Virus**
LaTonya Monique Little, 17, Junior
Candace D. Tubbs, 16, Junior
Yazoo City High School, Yazoo City, Mississippi
T: Debbie Raddin
- BO312T Hortensia—pH Indicator**
Daniel Matias Varela Frias, 17, Senior
Christian Pablo Claveria Grondona, 17, Senior
Escuela de Comercio N1, Gral. Manuel Belgrano, Tucuman, S.M. de Tucuman, Argentina
T: Jorge Eduardo Stegmayer

CHEMISTRY

GRAND AWARDS PRESENTED BY: INTEL

- CH001 Mechanisms of the Photoisomerization of Conjugated Dienes as a Model for the Primary Visual Event**

Nazanin Jouei, 18, Senior, Ely High School, Pompano Beach, Florida, T: Doris Walden
- CH002 Chemical Compositions of Clay Compared to Clay Artifacts: Two-Year Study**
Mary Ellison Baars, 17, Junior, B. T. Washington High School, Pensacola, Florida, T: Glenda Marshman
- CH003 Natural vs. Synthetic Dye**
Samantha Diane Feldman, 17, Junior, Shades Mountain Christian School, Birmingham, Alabama, T: Lillie Kelly
- CH004 Experimental Development to Initiate Flocculation of Colloidal Substances Suspended in Dispersing Mediums**

Cyrus Ethan Bevenger, 18, Senior, Cody High School, Cody, Wyoming, T: Nelson B. Thomas
- CH005 Effects of Varying Wavelengths on Liesegang Rings**
Krista M. Davies, 18, Senior, Brush High School, Brush, Colorado, T: David L. Miner
- CH006 Fundamental Charge of an Electron**

Lori Ann McDonald, 19, Senior, Pequot Lakes High School, Pequot Lakes, Minnesota, T: John McDonald
- CH007 Kaleidoscopes—Refraction of Various Liquids Through Polarized Light**
Amber Nicole Lutz, 18, Senior, MacArthur Senior High School, Lawton, Oklahoma, T: Celia Hawk
- CH008 Dynamics of Ionic Oligomers Through Random Pores**
Jayanta Fowler Mohanty, 17, Junior, Cumberland High School, Cumberland, Rhode Island, T: Frank Ianetta
- CH009 Environmental Stress on the Chemistry of Indian River Lagoon Surface Waters: Phase II**
Stephanie Marie Miller, 17, Senior, Cocoa Beach High School, Cocoa Beach, Florida, T: Joyce Miller
- CH010 Alum With Cream of Tartar as a Mordant to Improve Color and Light Fastness of *Allium cepa* Skin Dyed Cotton Fabric: Two-Year Study**
Erin Ryan Rachesky, 16, Sophomore, Rutherford High School, Panama City, Florida, T: Elizabeth Davis
- CH011 Synthesis and Detection of 8-Nitroguanine in DNA: Two-Year Study**
Greg Simon Holwitt, 17, Senior, Douglas MacArthur High School, San Antonio, Texas, T: Carolyn Pesthy
- CH012 Echinacea—Natural Antibiotic? Two-Year Study**
Dianna Blair Spence, 16, Sophomore, Jasper High School, Plano, Texas, T: Angela Kollmann
- CH013 XY Zeolite to Reduce Polymer Flammability**
Laura Domenica Ryssdal, 15, Sophomore, Gold Beach High School, Gold Beach, Oregon, T: Mary L. Omberg

- CH014 Aerogel Formation—New Approach Using a Unique Rapid-Gelation Two-Step Catalysis**
Stephen Alan Steiner III, 18, Senior, Nicolet High School, Glendale, Wisconsin, T: Ronald LeMay
- CH015 Chemical Composition of School Water—Is the Drinking Water Up to EPA Standards: Two-Year Study**
Shannon Nicole Snyder, 18, Senior, Crestview High School, Crestview, Florida, T: Robert M. Schrader
- CH016 Potentiometric Titration of Silver Precipitates**
Christopher Reed Snyder, 18, Senior, Ephrata Senior High School, Ephrata, Pennsylvania, T: Wilmer Nolt
- CH017 Interface Between Ceramic Substrate and Metal Oxide Coating: Two-Year Study**
Jeffrey R. Lancaster, 17, Senior, Dupont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig
- CH018 Passivity of Iron in Aerated Distilled Water**
Michael H. Nyberg, 14, Freshman, Lyme-Old Lyme High School, Old Lyme, Connecticut
- CH019 Up in Smoke—Chromium in Cigarette Smoke**
Priscilla Michelle Van Dyke, 17, Junior, Burkburnett High School, Burkburnett, Texas, T: Pam Francis
- CH020 Corrosion Inhibitors in Tobacco: Three-Year Study**
Stephanie Marie Gleason, 17, Junior, Southeastern High School, South Charleston, Ohio, T: Jeff Miller
- CH021 Fractal Dimension of Diffusion-Limited Aggregates**
Ronen E. Mukamel, 17, Junior, Brighton High School, Rochester, New York, T: Kathy Giglio
- CH022 Synthesis of Disulfated Fucoidan Fragment**
Natalya S. Zlotina, 17, Junior, Moscow Chemical Lyceum No. 1303, Moscow, Russia, T: Semenov S. Evgenievich
- CH023 Polyphosphate Hydrolysis Using ³¹P NMR**
Kenneth Allen Robertson, 15, Sophomore, Dickson County Senior High School, Dickson, Tennessee, T: Philip Chadwick
- CH024 Effects of Hydrogen Peroxide Concentration on Peroxyoxalate Chemiluminescence**
Justin Patrick Nance, 16, Junior, Amherst County High School, Amherst, Virginia, T: Thomas Morgan
- CH025 Electrochemical Analysis of Martian Soil**
Gary Sung-Hong Chan, 18, Senior, Louisiana School for Math Science and the Arts, Natchitoches, Louisiana, T: Chris Hynes
- CH026 Synthesis of Zinc L-Cystinate From Human Hair**
Rujun Jin, 18, Senior, Shanghai No. 3 Girls Middle School, Shanghai, China, T: Xiangfa Xu
- CH027 Does Lipid Content Affect Dough Rheology?**
Lauren Elizabeth Walker, 16, Junior, James Madison High School, Vienna, Virginia, T: Judy Barrile
- CH028 Red Mud—Friend or Foe**
Randy Andre Harrison, 18, Senior, Knox Community College, Clarendon, Jamaica, T: Errol C. Miller
- CH029 Analysis of the Chemoluminescent Reactions of 3-Aminophthalhydrazid**
Hendrik Sebastian Lattekamp, 18, Senior, Lakeview High School, Columbus, Nebraska, T: Edward Kinzer
- CH030 Possible Synthesis of Ibuprofen**
Isaac E. Lloyd, 16, Sophomore, Ogden Senior High School, Ogden, Utah, T: Randy Hilton
- CH031 Catalytic Synthesis of Pyrazines From Glycoles and Diaminoethane**
Kirill M. Skupov, 16, Junior, Moscow Chemical Lyceum No. 1303, Moscow, Russia, T: Semenov Sergey Evgenievich
- CH032 Conducting Corrosion—Study of Solution Properties: Three-Year Study**
Ashvin Kumar Dewan, 17, Junior, Hightower High School, Missouri City, Texas, T: Patricia A. Chriswell
- CH033 Methane Output Differences in Nutrient-Altered Anaerobic Digestive Systems: Two-Year Study**
Joseph A. Mietus, 17, Junior, Macomb High School, Macomb, Illinois, T: Mike Sartoie
- CH034 Saponified Oils**
Anne Marie Luna, 16, Junior, Faith Temple Christian School, Portales, New Mexico, T: Kim Luna
- CH035 Can Coffee Bean Origin Be Identified by Molecular Characterization? Three-Year Study**
Krista P. Taake, 16, Sophomore, Waterloo High School, Waterloo, Illinois, T: Debbie Clinebell
- CH036 Comparison of TCLP Analysis—Sequential Extraction Procedure and a Modified Sequential Extraction Procedure**
Amber Lynn Mitchell, 17, Senior, Saint James High School, St. James, Louisiana, T: Kermit Gauthreaux
- CH037 Photochemical Storage of Solar Energy by Polymer-Supported Sensitization of the Norbornadiene Quadricyclane System**
Blake Michael Piper, 17, Senior, Oregon Episcopal School, Portland, Oregon, T: Bill Lamb
- CH038 Gas Chromatograph's Look at Indoor-Air Quality**
Michael R. Ditton, 18, Senior, Roy C. Ketcham Senior High School, Wappingers Falls, New York, T: John Ditton
- CH039 Determination of Calcium Concentration in Cheese by Atomic Absorption Spectroscopy**
Terra Anne Hansen, 18, Senior, Wasatch High School, Heber, Utah, T: Tod Johnson
- CH040 Which Synthetic Ice Cube Has the Best Cooling Capacity?**
Alene Duersch, 15, Freshman, Canyon View Junior High School, Orem, Utah, T: Doug Pusey
- CH041 Synthesis and Evaluation of Alkylated Polyamines**
Kavon Aldayne Stewart, 18, Senior, Redford High School, Detroit, Michigan, T: Herman Oliver
- CH042 Control of Muscle Cell Growth by Polysaccharides**
Aaron Dior Kilgore, 19, Senior, Redford High School, Detroit, Michigan, T: Ruby Holloway
- CH043 Oil Analysis—Wear Metals and Element Contaminants**
Patrick A. Koistinen, 16, Sophomore, Hamlin High School, Hayti, South Dakota, T: Christine A. Owen
- CH044 Which Baby Bottle Brand Leaches the Most Bisphenol-A?**
Tiffany Rochelle Brown, 17, Junior, Benjamin E. Mays High School, Atlanta, Georgia, T: Alma F. James
- CH045 Chemical Properties of C₆₀—Carbon Football**
Karl Richard Tordrup, 20, Senior, Aalborghus Gymnasium, Aalborg, Denmark, T: Annie B. Andersen
- CH046 Gems—Genetically-Evolved Molecular Structures**
Lauren Beth Sendek, 18, Senior, McKeesport Area Senior High School, McKeesport, Pennsylvania, T: Mary Ann Alfonsi
- CH047 Heavily Caffeinated—Roasting Coffee Beans to Eradicate Caffeine**
Katherine E. Arner, 17, Junior, Georgiana Bruce Kirby Prep. School, Santa Cruz, California
- CH048 Origin of Life—Simulation of Amino Acid Formation in the Test Tube**
Naoko Senda, 18, Senior, Shibuya Makuhari High School, Chiba, Japan, T: Joh Moriguchi
- CH049 Optimizing Corrosion Resistance of Curpic and Ferrous Alloys Using Cathodic Protection: Three-Year Study**
Benjamin James Pernezný, 16, Junior, Wellington High School, Wellington, Florida, T: Charlsa Ann Henderson
- CH050 Crosslinked Calcium—Alginate Pellets for Targeting the Delivery of Nonsteroidal Anti-Inflammatory Agents**
Farrah D. Sajan, 17, Senior, Suncoast High Community School, Riviera Beach, Florida
- CH051 Colors to Dye For**
Crystal Marie Edwards, 15, Sophomore, Mecosta Osceola Math, Science and Technology Center, Big Rapids, Michigan, T: Matt Williams
- CH053 Titration of Air—Determination of Oxygen in Air by Titrimetric Analysis With Nitric Oxide**
Orlando Eric Flores, 16, Junior, Harlingen High School, Harlingen, Texas, T: Edwin Bates
- CH301T Are Hazardous Levels of Perchloroethyle Found in Your Dry-Cleaned Clothing?**
Mary H. Orwig, 16, Sophomore
Eric M. Banister, 15, Sophomore
Houston County High School, Warner Robins, Georgia
T: Laura Byrd

- CH303T Diverse Reactions of Singlet Oxygen With Various Metal Thiolates**
Timothy Allen Dong, 15, Sophomore
Annie Giang, 15, Sophomore
Debbie Chu, 16, Sophomore
Alhambra High School, Alhambra, California
T: Duane Nichols
- CH304T Determination of Reactivity Ratios for Polyacrylate Elastomers**
Clayton Michael Smith, 16, Junior
Wei Deng, 17, Junior
duPont Manual Magnet High School, Louisville, Kentucky
T: Glenn Zwanzig
- CH305T Ash Is Not Trash**
Kirkland Ainsworth Clarke, 16, Senior
Carole Sususaye Barnaby, 18, Senior
Kerry Ann Shamaria Parquharson, 18, Senior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- CH306T Vitamin C—Here Today, Gone Tomorrow, Or Is It?**
Kristi B. Meaders, 15, Freshman
Kathleen Dawn Wilkes, 14, Freshman
North Ogden Junior High School, Ogden, Utah
T: Bob Lane
- CH307T Synthesis of Novel Taxanes as Potent New MDR Reversal Agents for Cancer Chemotherapy**
Kenneth Hung, 17, Senior
Punita Bhansali, 17, Senior
Kings Park High School, Kings Park, New York
T: Jane Schoch
Half Hollow Hills High School East, Dix Hills, New York
T: Raymond McGraime
- CH308T Production of a Shampoo Base on Extracts From *Gliricidia sepium***
Alejandra Fernandez-Sanchez, 18, Junior
Maria Jesus Solis-Duran, 17, Junior
Graciela Oguilve-Villalobos, 17, Junior
Costarican Scientist High School, Montes de Oca, Costa Rica
T: Eduardo Minero-Torres

COMPUTER SCIENCE

GRAND AWARDS PRESENTED BY:

INTEL

- CS001 Complex Emergent Behavior in a Multi-Robot System**
Edmund M. Rogers, 17, Junior, Canterbury School, Fort Myers, Florida, T: Mary Elizabeth Glass
- CS002 Second Generation of Tactile-Sensitive Hybrid Keypad for Practical Applications With Carpal Tunnel Syndrome and Repetitive Strain Injury Disabilities: Two-Year Study**
Alexandria E. de Aranzeta, 15, Freshman, Vanguard High School, Ocala, Florida, T: Catherine Beebe
- CS003 Neural Fourier Transforms for Shape Analysis**
Cambrian Yangshao Liu, 16, Junior, Baton Rouge Senior High School, Baton Rouge, Louisiana, T: Mark Barry
- CS004 Modeling a Dynamic Transportation Network**
Benjamin J. Lachman, 17, Junior, Lachman Home School, Athens, Ohio, T: John R. Lachman
- CS005 Computer Program to Teach Water Education: Phase II**
Johanna Lee O'Brien, 15, Freshman, Lake Highland Preparatory School, Orlando, Florida, T: Chris Tamayo
- CS006 Progressive Neural Networking: Two-Year Study**
Muhammed Abdul Ali, 18, Juniore, Mankato West High School, Mankato, Minnesota, T: Dale Hedlund
- CS007 System for Gathering, Sorting, Digitalizing and Displaying Local Weather Conditions Via the Internet**
James D. Rollason, 16, Sophomore, Isabel High School, Isabel, South Dakota, T: LuAnn Lindskov

- CS008 Robotic Design for Environmental Interaction**
Randy Paul Waguespack, 15, Freshman, Lutchter High School, Lutchter, Louisiana, T: Phillip Creel
- CS009 Microstructure of the Discrete Fourier Transform: Phase II**
Robert Carl Vogt IV, 15, Senior, Ann Arbor-Huron High School, Ann Arbor, Michigan, T: Kevin Behmer
- CS010 Investigating Delaunay Triangulation as a Basis for a Traveling Salesman Problem Algorithm**
Christine Thao Phan, 15, Sophomore, Westmoore High School, Oklahoma City, Oklahoma, T: Bradley O. Brauser
- CS011 Exploring 3-D Computer Graphics**
Christian James Bell, 15, Sophomore, Olympia High School, Olympia, Washington, T: Wayne Beeson
- CS012 Cerberus Encryption Engine**
Benjamin Adam Slavin, 16, Sophomore, Cedar Crest High School, Lebanon, Pennsylvania, T: JoLonda Hopwood
- CS013 Redundancy and Entropy in the English Language and How it Leads to Data Compression: Two-Year Study**
Julie Carol Humeas, 17, Senior, Jefferson High School, Shenandoah Junction, West Virginia, T: Virginia C. Demchik
- CS014 Effect of Image Size and Interpolation on Face Recognition: Phase II**
Catherine Elizabeth Zelnio, 17, Senior, Chaminade-Julienne High School, Dayton, Ohio, T: Michael O'Shaughnessy
- CS015 Secure Encryption—How Safe Is Your Data?**
Kalim Farooq Moghul, 17, Junior, McNair Academic High School, Jersey City, New Jersey, T: Rick Fabrizio
- CS016 Embryonic Cellular Morphology—Two-Dimensional Cellular Automaton**
John James Shedletsky, 17, Junior, Brewster High School, Brewster, New York, T: Michael Mostransky
- CS017 Spectral Peaks and Shape in Speech Recognition**
Dominik Roman Rabiej, 16, Junior, Kalamazoo Area Mathematics and Science Center, Kalamazoo, Michigan, T: John Goudie
- CS018 Vocalized Translator Internet Browser**
Hafiz Musa, 16, Sophomore, Sek. Men. Keb. Taman Dato Harun, Petaling Jaya, Selangor, Malaysia, T: Looi Chui Yean
- CS019 System "VisualGene" for Research and Usage of Genetic Algorithms**
Maxim Kuzmich, 16, Junior, GEE School - Laboratory N51, Gomel, Belarus, T: Alexandr Pahouchy
- CS020 QBots—System for Developing Mobile Robot Software in Less Time for Less Cost**
Eser Kubali Chamoglu, 17, Junior, Horace Mann School, Bronx, New York, T: Russell Hatch
- CS021 Taskable Simple Onboard Adaptive Robot Controllers in Real-World Complex Environments: Two-Year Study**
Leonardo F. Urbano, 17, Senior, Christ The King Regional High School, Middle Village, New York, T: Andrea Negri
- CS022 3-D Transformations Applied to Computer Programming**
Jonathan Mark Cornwell, 16, Senior, North Alabama Friends School, Huntsville, Alabama, T: Roland K. Cornwell
- CS023 Affordable Construction of a Personal Computer**
Michael S. McDaniel, 18, Senior, Demopolis High School, Demopolis, Alabama, T: Mary Thomaskutty
- CS024 Semantic Poetry Creation Using Lexicographic and Natural Language Texts**
Jordan Lee Boyd-Graber, 17, Senior, Arkansas School of Mathematics & Sciences, Hot Springs, Arkansas, T: Shane Willbanks
- CS025 Overclocked—Does Temperature Affect the Performance of Computer Components?**
Sheldon Baggett, 17, Senior, Grenada High School, Grenada, Mississippi, T: Jack Holliday
- CS026 View-Dependent Continuous Level of Detail by Multiresolution Analysis**
Robert Y. Wang, 16, Senior, Conway High School, Conway, Arkansas, T: Belinda K. Hasty
- CS027 Safety in Numbers**
Leslie Dathan Bennett, 17, Senior, Coldspring/Jones High School, Coldspring, Texas, T: Karen Hewitt

- CS028 Application of Advanced Genetic Algorithms for Optimization of Lens Design**
Alexander A. Gondarenko, 17, Senior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Robert E. Latham
- CS029 Effects of Overclocking a Computer**
Chance Wayne Schraeder, 16, Sophomore, Box Elder High School, Brigham City, Utah, T: Ron Cefalo
- CS030 Improved Object-Oriented Artificial Intelligence Navigation Algorithms: Two-Year Study**
Jonathan Michael Joyce, 17, Junior, Hayfield Secondary School, Alexandria, Virginia, T: Kurt Haldeman
- CS031 Fiber Optic Null-Modem**
Ian Lesslie Cadieu, 16, Sophomore, John L. Miller-Great Neck North High School, Great Neck, New York, T: David Keith
- CS032 Evolving a Faster Commute**
Christopher Jason Cunningham, 15, Sophomore, Saginaw Arts and Sciences Academy, Saginaw, Michigan, T: Daniel Sealy
- CS033 Formulation of a Document Content Specification System to Support the Development and Implementation of a Content Index Network**
Alexander Grant Clark, 18, Senior, Saint Andrew's Episcopal School, Ridgeland, Mississippi, T: Sandra S. Hindsman
- CS034 Computer Mouse Design for People Without Arms or With Impediments of Their Hands**
Antonio Fuentes, 16, Junior, Liceo Ponceno, Ponce, Puerto Rico, T: Aida B. Montito-Rodriguez
- CS035 Pattern Recognition in Artificial Intelligence: Phase II**
Francis Jee-Hyun Chung, 16, Junior, Lisgar Collegiate Institute, Ottawa, Ontario, Canada
- CS036 Biological Image Processing**
Jeremiah Marton Rothschild, 17, Junior, White Station High School, Memphis, Tennessee, T: Doris Hawkins
- CS037 Graphing Non-Functions**
Richard Lewis Wright, 16, Sophomore, Delta High School, Delta, Utah, T: Carl Lyman
- CS038 Context-Based Entropy Reduction Algorithms for Text Data Compression**
Rishi Mukhopadhyay, 17, Junior, Detroit Country Day School, Beverly Hills, Michigan, T: Gene Menton
- CS039 Dynamic Rendering and Lighting Algorithm for Arabolic Approximation of 3-D Objects**
Katherine B. Mowery, 16, Senior, River Hill High School, Clarksville, Maryland, T: Sharon Kramer
- CS040 WarpPort—Wireless Parallel Port Interface Device**
Witoon Arunsingka, 17, Senior, Phaphathom Wittayalai School, Nakornpathom, Thailand, T: Choochai Noikorn
- CS041 Visible Surface Determination for Moving Camera in First Person 3-D Software—Smart VSD**
Nuttapon Chentanez, 16, Junior, Chulalongkorn University Demonstration School, Bangkok, Thailand, T: Chaisak Changjai
- CS042 PC's Radio Control**
Carlos Gabriel Valverde, 16, Senior, Instituto San Pablo, Lujan, Mendoza, Argentina, T: Ernesto J. Giaquinta
- CS043 LANS Without Network Cards**
Ladislav Prosek, 18, Senior, Vaclav Hlavaty's Grammar School, Louny, Czech Republic, T: Milan Rieger
- CS044 Objective Assessment of a Solo Musical Performance**
Kelly Marie Loyer, 16, Junior, La Plata High School, La Plata, Maryland
- CS045 Intelligent Genetic Algorithm**
Joseph Simon Reisinger, 17, Senior, The Woodlands High School, The Woodlands, Texas, T: Cheryl Sturgeon
- CS046 Surf the Net—Utilizing a Web-Based Math Curriculum: Two-Year Study**
Kathryn Louise Schmidt, 16, Sophomore, Mason High School, Mason, Texas, T: Bonnie Schmidt
- CS047 OpenGL vs. Direct3D**
Chris L. Speidel, 17, Junior, Devils Lake Central High Sch, Devils Lake, North Dakota, T: Jim Samson
- CS048 Evolution of the Internet Browser**
Ryan A. Schiermeister, 16, Junior, Mandan High School, Mandan, North Dakota, T: Travis Coyle
- CS049 Story of Understanding Program in Prolog**
Hasuk Francis Song, 16, Sophomore, La Jolla High School, La Jolla, California, T: Greg Volger
- CS050 X-Ray Which Searches and Cures the Unknown Computer Viruses**
Ju-Hyun Yoon, 15, Sophomore, Kyongnam Science High School, Jinju, Kyongsangnam-do, South Korea, T: Doo-Hwan Bae
- CS051 Lighthouse—Tool for Managing Home PC From a Remote Area Using HTTP Protocol**
Joon-pyo Lee, 18, Senior, Korea Christian Academy, Taejon, South Korea, T: Doo-hwan, Bae
- CS052 Design and Implementation of a Neural Network Visual Image Recognition System**
Gregory Allen Grothaus, 17, Senior, Southside High School, Greenville, South Carolina, T: Tom K. Rogers
- CS302T EMAS System to Assist Medical Staff During an Emergency**
Timothy R. Thomas, 18, Senior
Naman A. Shah, 15, Freshman
Palm Bay High School, Melbourne, Florida
T: Michael O'Donnell
- CS303T Hybrid Text to Speech 2000: Phase II**
Joseph E. Pechter, 18, Senior
William H. Pechter, 18, Senior
Saint Edward's School, Vero Beach, Florida
T: Thomas McCarthy
- CS304T Cyber 2000**
Carlos Roisenuit Esquivel, 16, Sophomore
Christian Febres, 16, Sophomore
Club of Science Albert Einstein, Lima, Peru
T: Moises E. Guerra
- CS305T Lucifer's Hammer—Computer Simulation of Asteroid Trajectories**
Derek Thomas Mehlhorn, 17, Senior
Adrienne Renee Upah, 18, Senior
William Harding Pearl, 18, Senior
Albuquerque Academy, Albuquerque, New Mexico
T: Jim Mims
- CS306T Pathfinding Through Height-Fields**
Tyler James Laing, 18, Senior
Ryan A. Merrill, 18, Senior
Roy High School, Roy, Utah
T: Dale J. Slade
- CS307T Molecular Modeling Workbench**
Ivan V. Sidorov, 16, Junior
Fatima M. Keshtova, 17, Junior
Kirill Dmitrievitch Zakharenko, 16, Junior
Lyceum of Information Technologies, #1533, Moscow, Russia
T: Alexei A. Tcherkasov
- CS308T MTI-Laser Transmission Module**
Gilson Hoffmeister, 20, Senior
Guilherme Fredrico Weidle Jr., 18, Senior
Jonatas Mattes, 19, Senior
Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo,RS, Brasil
T: Luis Alberto Maccarini

EARTH AND SPACE SCIENCES

GRAND AWARDS PRESENTED BY: SCIENTIFIC AMERICAN

- EA001 Verification of Lightning Strike Estimation Utilizing Induced VLF Interference**
Drew V. Blas, 16, Junior, Cheyenne East High School, Cheyenne, Wyoming, T: Mike Shappell
- EA002 Making Waves—Phase Doppler Imaging of the Rings of Saturn**
Meagan Elizabeth Messina, 15, Freshman, Saint Joseph's Academy, Baton Rouge, Louisiana, T: Linda K. Messina

- EA003 Simulating Hydric Conditions in Non-Hydric Soils to Redoximorphically Define Wetlands: Three-Year Study**
Austin Anthony DeCock, 18, Senior, Lake Park/Audubon High School, Lake Park, Minnesota, T: Micheal Wichmann
- EA004 Pulsecellular Tornadogenesis: Two-Year Study**
Jay Lawrence Michaels, 18, Senior, Cocoa High School, Cocoa, Florida, T: Raul Montes
- EA005 Supernova SN1999GI and Nuclear Reactions as They Take Place During a Supernova**
Aaron Patrick Ray Starkey, 17, Senior, Dekalb High School, Waterloo, Indiana, T: Richard Barber
- EA006 Microvariability of Quasars**
Ethan Campbell Geil, 17, Junior, Sebastian River High School, Sebastian, Florida, T: Cheryl Domineau
- EA007 Sailing Into Space—Reflecting on a Solution**
Ulyana N. Horodyskyj, 14, Freshman, Padua Franciscan High School, Parma, Ohio, T: Barbara Kraemer
- EA008 Sahara Dust—Correlation Between Sun Photometer Readings and Satellite Images: Three-Year Study**
Clint Royal Beicker, 18, Senior, Seguin High School, Seguin, Texas, T: Donna Boelter
- EA009 Effects of Coastal Hydrometeorological Setting on the Summer 1993 Mississippi River Flood**
Nicodemus Pitre Bernard, 17, Junior, Eunice High School, Eunice, Louisiana, T: Patrick Bergeron
- EA010 Soybeans in Space—Can They Survive the Trip? Two-Year Study**
Lindsey Anne Nelson, 16, Junior, Cloquet Senior High School, Cloquet, Minnesota, T: Tim Anderson
- EA011 Eclipsing Binary Stars—Classification vs. Celestial Positioning: Six-Year Study**
Timothy Curtis Allen, 17, Junior, Union County High School, Lake Butler, Florida, T: Renae Allen
- EA012 Relationship Between Asteroid Impact Energy and Crater Size**
Elizabeth Helen Tanzini, 18, Senior, Hamilton High School East, Hamilton, New Jersey, T: Deborah Ryan
- EA013 Using GPS to Quantify the Relative Lightning Risk of Ridges and Mesas: Three-Year Study**
Aaron Taylor Burgess, 14, Freshman, Fairview High School, Boulder, Colorado, T: Elisa Passarelli
- EA014 Radar Modeling of Hurricanes—Changes in Internal Structure of a Hurricane at Landfall**
Carl M. Sandin, 18, Senior, Mast Academy, Key Biscayne, Florida, T: Wafa Khalil
- EA015 Accuracy of Amateur Meteorologist's Predictions of Advanced Meteorological Station vs. Natural Indicators and Basic Equipment: Two-Year Study**
Allison Cathleen Carter, 17, Junior, Central High School, Macon, Georgia, T: Tina Brigmond
- EA016 Meteor Impacts in Effect of Prediction of Moon Craters Using Equations**
Richard Perez-Moyet, 17, Senior, Centro Residencial de Oportunidades Educativas, Mayaguez, Puerto Rico, T: Brenda M. Cabrera
- EA017 Dynamic Formation of Tidal Structure in Interacting Galaxies as Determined by Newtonian Model Computer Simulations: Phase II**
Daniel Alan Perley, 17, Senior, Socorro High School, Socorro, New Mexico, T: Mariann Patterson
- EA018 Hurricane Activity in Conjunction With Global Changes**
Regina Dorothy Schommer, 18, Senior, Poplarville High School, Poplarville, Mississippi, T: Stephen D. Seal
- EA019 Cyanobacteria vs. Mars—Can Cyanobacteria Survive Mars-Like Conditions?**
Vanessa McGee Crawford, 17, Senior, Tucson Magnet High School, Tucson, Arizona, T: Margaret Wilch
- EA020 Knox Rocks**
Nioka Andrienne Johnson, 17, Senior, Knox Community College, Clarendon, Jamaica, T: Errol C. Miller
- EA021 Cloudy Web Simulator**
Robert Carlin Allen, 18, Senior, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, T: Robert Latham
- EA022 Exploring Rocks and Minerals in Central Jamaica**
Annetta Ann-Marie Neil, 17, Senior, Knox Community College, Clarendon, Jamaica, T: Errol C. Miller
- EA023 Slope Failure Along the Wasatch Front**
Megan E. Fuller, 15, Sophomore, Bountiful High School, Bountiful, Utah, T: Dwight G. Brown
- EA024 Effects of Different Soil Substrates on Water Drainage**
Terra Lynne Higgins, 17, Junior, Carl Junction High School, Carl Junction, Missouri, T: Paul Foster
- EA025 Solar Energy**
Clayton Gregory Painter, 15, Freshman, Emerson Junior High School, Enid, Oklahoma, T: George A. Ford
- EA026 Nucleation Process and Isomorphism Ionic Salts**
Maria Piedad Rossi, 16, Sophomore, Colegio de la Salle, Talca, Septemia Region, Chile, T: Maria Angelica Riquelme V.
- EA027 Solar Activity Tracking in the Visible Spectrum**
Eder Milton Schneider, 18, Senior, Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, RS, Brasil, T: Ronaldo Do Espirito Santo Rodrigues
- EA028 Cosmic Bubbles—Improving Hi Shell Detection Around Massive Stars**
Francis Boulva, 17, Junior, College Jean-de-Brebeuf, Montreal, Quebec, Canada, T: Louis Bourgeois
- EA029 Effects of Low Gravity and Centripetal Force on Geotropisms**
Jildardo Arias, 17, Senior, Olton High School, Olton, Texas, T: Paul Walden
- EA030 Spectral Variation in a Cepheid Variable Star**
Bradley Bunnell, 14, Freshman, Mont Harmon Junior High, Price, Utah, T: Terry S. Bikakis
- EA031 Shield Volcanos, Coronae and Lithospheric Evolution on Venus**
Carolyn Morgan Tewksbury, 14, Freshman, Clinton Senior High School, Clinton, New York, T: Jon Krawiec
- EA032 Green Wink—Optical Phenomenon on the Horizon**
Kristen Leiko Kinjo, 17, Junior, Stevens High School, Rapid City, South Dakota, T: Jane Roseland
- EA033 Testing Metal Slats Build-Up From Long-Term Irrigation on Crops: Phase II**
Laura Renee Baker, 17, Junior, Hartville R-II High School, Hartville, Missouri, T: Glen Boyer
- EA034 SolarNet—Space Weather Monitoring and Forecasting System**
Ashley Elizabeth Wall, 16, Junior, Atholton High School, Columbia, Maryland, T: Constance Lewis
- EA035 Which Soil Holds the Most Water?**
Shelly McKinney, 14, Freshman, Crockett Technical High School, Detroit, Michigan, T: Krystal Davison
- EA036 Soggy Soils**
Diana Marie Phillinganes, 15, Freshman, Frank Cody High School, Detroit, Michigan, T: Sharon Carter
- EA037 Effects of Indole-3-Acetic Acid on Germination and Growth of *Latuca sativa* in Zero Gravity: Two-Year Study**
Brianna Ashley Kurtz, 16, Junior, Roanoke Valley Governors School for Science and Technology, Roanoke, Virginia, T: John Kowalski
- EA038 Structure and Composition of Aerospace System for Research of Planets' Atmosphere**
Konstantin Viktorovich Budakovskiy, 16, Junior, Secondary School #5, Nalchik, Kabardino-Balkaria, Russia, T: Khadji-Murat K. Baisiev
- EA039 Will a Centrifuge Provide Gravitropism for Plant Growth in Space? Phase II**
Shannon Alyson Day, 15, Sophomore, Glencoe Middle School, Glencoe, Alabama, T: Charlene McCoy
- EA040 Properties of Snow—Snow Crystal Metamorphism: Phase III**
Garl H. Germann, 19, Senior, Ennis High School, Ennis, Texas, T: Marcus Elser
- EA041 Improper Motion—Accuracy of Motion for Three Groups of Stars in the *Hipparcos* Catalogue**
Sabrina Curie Snell, 14, Freshman, School Without Walls, Washington, District of Columbia, T: Edward Ruppert

- EA042 Asteroid Photometry of Devosa (377), Gisela (352), Nike (307) and Gordonia (305)**
Susannah Cathleen Lazar, 15, Sophomore, Lazar Home School, Baton Rouge, Louisiana, T: Peter Lazar III
- EA043 Safe Quake—Alarm for Earthquake Detection**
Edgar J. Villarreal, 15, Freshman, John B. Alexander High School, Laredo, Texas, T: Paula Reyes
- EA044 Fossil Cephalopoda Limacelles of Precaspian**
Eldar Iskakov, 15, Junior, Technical Lyceum, Atyrau, Atyrauskaya oblast, Kazakhstan, T: Pastkhov Y. Alexandrovich
- EA301T Wavelet Analysis of Seismological Data**
James Philip McKenna, 17, Junior
Clare Marie O'Connell, 16, Junior
Loreto College, County Derry, IRELAND
T: Brian McKenna
- EA302T Universe's Contents—Dark Matter**
Freddy Raynard Funes, 18, Senior
Hanio Jose Zuniga, 18, Senior
David Mercuri, 18, Senior
Miami Beach Senior High School, Miami Beach, Florida
T: Allyn Pond
- EA303T Strontium Isotope Dating of SM590**
Sharmini Elena Pitter, 15, Freshman
Saira Lyn Anderson, 15, Freshman
Lawton Chiles High School, Tallahassee, Florida
T: Eugenia Traylor
- EA304T Determination of Distance to Dwarf Galaxy by Three Brightest Stars**
Vyacheslav S. Zhabin, 17, Junior
Dmitry N. Solovyov, 15, Sophomore
School #34, Ryazan, Russia
T: Andrey K. Murtazov
Gymnasium #1, Ghukowsky, Russia
- EA305T Comparing Small Volcanic Edifices on Venus and Undersea Volcanoes**
Chandler Elizabeth Hatton, 16, Sophomore
Jordan E. Wirfs-Brock, 15, Sophomore
Oregon Episcopal School, Portland, Oregon
T: Rosa Hemphil
- EA306T Identifying Unknown Solar Absorption Lines**
Todd Ryan Faner, 18, Senior
Regan Anna Marie Wilson, 17, Junior
Grosse Pointe North High School, Grosse Pointe, Michigan
T: Ardis Maciolek
Grosse Pointe South High School, Grosse Pointe Farms, Michigan
- EA307T Effects of Land Use on the Geomorphology and Water Quality of North Burnt Fork Creek: Two-Year Study**

Cassandra Lynn Koerner, 16, Junior
Lynessa Kellogg, 16, Junior
Stevensville High School, Stevensville, Montana
T: George Wasser

ENGINEERING

GRAND AWARDS PRESENTED BY:

INTEL

- EN002 Overclocked and Chilled Out—Design, Construction and Operation of a Thermoelectric-Based Liquid-Cooled Personal Computer**
Ryan W. Kingsbury, 18, Senior, Fort Myers High School, Fort Myers, Florida, T: Karen Connors
- EN003 Which Type of Floor Support System Can Withstand the Most Weight in Pressure With the Least Deflection? Two-Year Study**
Joseph Q. Fante, 15, Freshman, Forest High School, Ocala, Florida, T: Jane S. Beebe

- EN004 Production and Application of Ethanol as Synthetic Fuel**
Mike John Casino, 16, Sophomore, Danbury High School, Danbury, Connecticut, T: Ronald Miller
- EN005 Engineering the Voice of the Oboe With Acoustical Principles: Three-Year Study**

Bryce Leitner Roberts, 16, Sophomore, The Altamont School, Birmingham, Alabama, T: Sophia Clifford
- EN006 Effects of Agricultural Byproducts as Alternatives in Biocomposites: Phase III**
Michael John Kluzak, 18, Senior, Lake Crystal Wellcome Memorial High School, Lake Crystal, Minnesota,
T: Bart Johnson
- EN007 How Would a Professionally-Made Violin Sound Compared to One That I Build?**
Antoine Niguel Perry, 17, Sophomore, MacArthur Senior High School, Lawton, Oklahoma, T: Celia Hawk
- EN008 Earthquake Engineering: Three-Year Study**

Joshua Michael Girvin, 17, Senior, Bloomington High School North, Bloomington, Indiana, T: Steven Girvin
- EN009 Automated Device to Measure Piano Action Characteristics**
Richard Douglas Condit, 15, Freshman, Bethel Academy Home School, Lake Charles, Louisiana, T: Lane E. Miller
- EN010 GPS Device to Transmit From a Data Module to a Hand-Held Computer**

Matthew Olivier Hart, 18, Senior, Alfred M. Barbe High School, Lake Charles, Louisiana, T: Lane E. Miller
- EN011 Design of Edible and Biodegradable Twine**
Cody William Malloy, 16, Sophomore, Isabel High School, Isabel, South Dakota, T: LuAnn Lindskov
- EN012 Brushless Electric Motors: Three-Year Study**
Stan S. Pozmantir, 14, Freshman, Clark High School, Plano, Texas, T: Lee Silva
- EN013 Automated Power Line Examination System: Two-Year Study**
Robert Patrick Weis, 16, Sophomore, Dunbar High School, Fort Worth, Texas, T: Dinesh M. Shah
- EN014 Magnetic Levitation**
James Eric Bettes, 15, Freshman, Wilburton High School, Wilburton, Oklahoma, T: Thomas Long
- EN015 Colorful, Liquid-Crystal Filter**
Ting Fan Wu, 18, Senior, Tainan First Senior High School, Tainan, Taiwan, Chinese Taipei, T: Ming-Sheng Deng
- EN016 Aluminum-Powered Fuel Cell**
Venkatasubramanian Muralidhara, 15, Sophomore, Little Lillys English School, Bangalore, Karnataka, India,
T: R. Ramesh
- EN017 Electronic Traction Control**
Steven Forrest Dodson, 18, Senior, Northview High School, Brazil, Indiana, T: Rachel L. Sparks
- EN018 Aerodynamic Lift**
Thomas Campbell Marden, 15, Freshman, Camden Fairview High School, Camden, Arkansas, T: Alonzo Bennett
- EN019 Sleuthbot—Robotic Search Tool**

Ryan Randall Patterson, 16, Sophomore, Central High School, Grand Junction, Colorado, T: John R. McConnell
- EN020 Variations in Surface Temperature Using Different Types of Aluminum Cladding in Industrial Insulation Applications**
Michelle Shivani Punj, 16, Sophomore, Maharishi School of the Age of Enlightenment, Fairfield, Iowa, T: Leslie Seal
- EN021 Plausibility of a Hydrogen Ion Drive: Two-Year Study**
Andrew Stuart Bugg, 18, Senior, duPont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig
- EN022 Dissipation of Thermal Energy From a Microprocessor Through Process of Vaporization of Isopropyl Alcohol**
Clayton Edward Durham, 17, Senior, West Rowan High School, Mount Ulla, North Carolina, T: Fred Williams
- EN023 Inverted Airfoil Parapet Implementation on Flat Roof Structures: Phase V**

Jonathan D. Williams, 18, Senior, West Rowan High School, Mount Ulla, North Carolina, T: Fred Williams
- EN024 Aqua Kleen—Automatic Aquarium Water Changer and Feeder**
Ramesh Rajandran, 16, Senior, Sekolah Menengah Kebangsaan Sultan Ismail II, Kemaman, Terengganu, Malaysia,

- T: Foo Kian Wah
- EN025 Correlation Between Electric Motor Cooling and Efficiency**
Owen Sonne Peterson, 16, Sophomore, Tandem Friends School, Charlottesville, Virginia, T: John Stenz
- EN026 How Does Nozzle Size Affect Thrust, Operating Pressure and Burn Time? Phase II**
Thomas Raymond Sanders, 15, Sophomore, Lake Havasu High School, Lake Havasu City, Arizona, T: Larry Mick
- EN027 Computer-Automated Rocket Engine Test Stand**
Nathaniel David Brown, 14, Freshman, Life Christian Academy, Madison, Alabama, T: Mary Brown
- EN028 Automatic A/V Router**
James Daniel Sedillo, 18, Senior, Saint Pius X High School, Albuquerque, New Mexico, T: James P. Carrie
- EN029 Drag Reduction of Submersibles Through the Use of Active Surfaces: Phase IV**
Maxwell Upton Woolsey, 18, Senior, Oxford High School, Oxford, Mississippi, T: James Reidy
- EN030 Thermal Detection for RC Sailplanes**
Jeffrey Scott Martzall, 18, Junior, Northrop High School, Fort Wayne, Indiana, T: Janet Braun
- EN031 Innovative Laser-Bonding Technique for Aluminum/Carbon Fiber Composites: Phase II**
William Nicholas Heltsley, 18, Senior, Tullahoma High School, Tullahoma, Tennessee, T: Frank H. Vanzant
- EN032 Micro Air Vehicle—Stability Experimentation and Micro-Pulsejet Development: Phase II**
Andreas Kellas, 17, Senior, Grafton High School, Yorktown, Virginia, T: Jessie Christman
- EN033 Factors Affecting Capacitance in Double-Layer Capacitors**
Michael Ryan Bales, 18, Senior, De Soto High School, De Soto, Missouri, T: Joan Drake
- EN034 Two Dimensional Dynamic Analysis of Structures With Emphasis on Earthquake Engineering**
Timothy F O'Connell, 15, Sophomore, Mills University Studies High School, Little Rock, Arkansas, T: Gary Earleywine
- EN035 Moravia Water Paradise**
Lehome Ricardo Johnson, 17, Senior, Knox Community College, Clarendon, Jamaica, T: Errol C. Miller
- EN036 New Type of Double-Axis Automatic Tracking Model With Solar Energy**
Xin Chen, 16, Junior, Bengbu, No. 2 High School, Bengbu, Anhui, China
- EN037 Perishable Food Preservation via Nuclear Irradiation**
Joshua Daniel Towns, 16, Junior, Navasota High School, Navasota, Texas, T: Logan Meitzen
- EN038 Venturi Jet Engine: Phase II**
Cody Clay Hansen, 17, Senior, Robert E. Lee High School, Midland, Texas, T: Andrew Franks
- EN039 Catalytic Converter for 4-Cycle Engines: Four-Year Study**
Kevin Donald Minchow, 18, Senior, Lakeview High School, Columbus, Nebraska, T: Edward Kinzer
- EN040 Smart Tufts—Technologies That Could Potentially Provide a Small, Lightweight and Inexpensive Way to Accurately Sense Airspeed and Direction**
Matthew Alan Rodgers, 16, Junior, Hayfield Secondary School, Alexandria, Virginia, T: Kurt Haldeman
- EN041 Phototropic Solar Cell—Novel Device to Enhance Photovoltaic Efficiency Through Utilization of Photoresistors and Vertical Translation**
Zachary Daniel Wissner-Gross, 15, Freshman, Great Neck South High School, Great Neck, New York, T: Richard Soviero
- EN042 Simple Refrigeration System for Third-World Countries**
Annie E. Woods, 16, Junior, Ben Lomond High School, Ogden, Utah, T: Tim Smith
- EN043 Development and Construction of a Robotic Insect**
Harold S. Barnard, 15, Sophomore, Bethlehem Central High School, Delmar, New York, T: David P. Barnard
- EN044 Wing Design and Angle of Attack**
Aaron Robert Pickard, 15, Freshman, Roy High School, Roy, Utah, T: Kathy Ochsenein
- EN045 Smart Alarm System Used in Throwing Sports Apparatuses**
Weizhe Hong, 16, Sophomore, The High School Affiliated to Renmin University of China, Beijing, China, T: Keke Fan
- EN046 Effects of Bank Stabilization on the Yellowstone River**
Joy Claire Womack, 17, Senior, Billings West High School, Billings, Montana, T: George Grover
- EN047 Analysis of Fracture Morphologies in 4340 Alloy Steel**
Terra Renee Ely, 18, Senior, Tuscarawas Valley High School, Zoarville, Ohio, T: Karl Schwenk
- EN048 Heat Energy of Air Conditioners as a Substitute for the Resistance of a Water Electrical Heater**
Marvin Luque, 16, Junior, Josefa Pastrana High School, Aguas Buenas, Puerto Rico, T: Felix Rodriguez
- EN049 ROX-544—Walking Like an Insect**
Alexis Lussier Desbiens, 17, Senior, Cegep de Victoriaville, Victoriaville, Quebec, Canada, T: Christian Heon
- EN050 Remote Flight Data Collection and Analysis System**
Etan Diamond Karni, 18, Senior, Leigh High School, San Jose, California, T: Lewis Smith
- EN051 Structural Efficiency of 3-D Truss**
Zane Tian, 17, Junior, Westborough High School, Westborough, Massachusetts, T: Elizabeth George
- EN052 Developing Tactile Sensors for a Mechanical Hand: Two-Year Study**
Jason N. Harris, 16, Sophomore, The Academy of Science and Technology, Conroe, Texas, T: Scott Rippetoe
- EN053 Robust Design Experiment Using an L18 Orthogonal Array**
Joseph F. Janas, 17, Junior, New Prairie High School, New Carlisle, Indiana, T: Donald L. Thomas
- EN054 Corrosion Resistance of Galvanized Steel - An Examination of Manufactured and Galvanized Steel: Five-Year Study**
Joanne S. Leong, 16, Junior, Lane Technical High School, Chicago, Illinois, T: Kenneth Carpenter
- EN055 See and Be Seen—Innovative Techniques and Applications to Enhance Traditional Motor Vehicle Safety Features**
Wyatt Myr, 17, Junior, Port Huron High School, Port Huron, Michigan, T: Lee Liu
- EN056 Omni-Directional Aerodynamic Probe and its Associated Analysis Software for Non-Compressible Flow Fields**
Jia Xu, 17, Senior, Montgomery Blair High School, Silver Spring, Maryland, T: Jonetta Russell
- EN057 Does the Direction of Fibers Affect the Strength of Composite Material?**
Amanda L. Corey, 17, Junior, Cahokia High School, Cahokia, Illinois, T: Barbara L. Vinson
- EN058 Automated Vibration Damping Using Passive Piezoelectric Technology: Phase II**
John Allen Christian, III, 18, Senior, Collins Hill High School, Suwanee, Georgia, T: Rosemarie Placek
- EN059 Glass III—Toward a Standard**
Amanda Jeanne Busby, 17, Junior, Kennett High School, Kennett, Missouri, T: Robert Earl Gill
- EN060 Post-Condensation Amalgam of Silica Aerogel and Single-Walled Carbon Nanotubes in the Development of a High Performance Material: Phase II**
Joel Ricardo Lee Meeks-Matous, 17, Senior, Giles High School, Pearisburg, Virginia, T: Arthur Salido
- EN061 What Angle of Attack in Airfoils Produces the Best Air Pressure Throughout Liftoff, Cruise and Landing**
Randall Cody Arnold, 15, Freshman, Tishomingo County High School, Iuka, Mississippi, T: Bobby Lowrey
- EN062 Electronic Sound Analysis**
Lauren Elizabeth Drouillard, 16, Sophomore, Divine Child High School, Dearborn, Michigan, T: Katherine Higgins-Luthman
- EN063 Sensitivity Nulling of Inertial Guidance Systems**
Siddharth Bhaskar Shenai, 18, Senior, Detroit Country Day School, Beverly Hills, Michigan, T: Daniel Berger
- EN064 3-D Microelectronics—Parameters of Thin Film Deposition**
Kristen Mary George, 17, Senior, The Altamont School, Birmingham, Alabama, T: Kurt Kristensen
- EN065 Can Acoustical Methods Be Used to Detect and Characterize Corrosion?**
George Hwang, 15, Sophomore, Carman-Ainsworth High School, Flint, Michigan, T: Iosif E. Shkolnik
- EN066 Aeronautics—Science of Flight: Phase II**
Blake Andrew Forsythe, 17, Junior, Harmony High School, Farmington, Iowa, T: Bernie McCauley

- EN067 Solvent Vapor Removal Efficiency of a Re-Designed Interface Between HPLC and GC Detectors**
Patrick Reese Reynolds, 18, Senior, Arkansas School of Mathematics & Sciences, Hot Springs, Arkansas, T: Shane Willbanks
- EN068 To Break or Not to Break—Analysis of Cement Additives**
Benjamin Allen Huffman, 15, Freshman, Heritage Christian School, Indianapolis, Indiana, T: Stephen T. Terry
- EN069 Homemade Gel Couples Well—Less-Expensive Ultrasound-Coupling Gels**
Jeffrey E. Ward, 17, Junior, Greenwood Laboratory School, Springfield, Missouri, T: Hugh Brewer
- EN070 Engineering an Accurate Simulation**
Brett Kalipekona Darcey, 17, Senior, Great Mills High School, Great Mills, Maryland, T: C. Allen Skinner
- EN072 Which Truss Can You Trust?**
Robert William Hernandez, 16, Sophomore, Ellendale Public High School, Ellendale, North Dakota, T: Peter Sykora
- EN073 Electrically-Driven Micrometer**
Sebestyen Balazs Ziegler, 19, Senior, Hell Jozsef Karoly Muszaki Szakközepiskola, Esztergom-kertvaros, Hungary, T: Kavalecz Sandor
- EN074 Axial Cone Envelope Pipe Closing Valve**
Gergely Gomori, 20, Senior, Szabo Ervin Gimnazium, Budapest, Hungary, T: Gomori Andras
- EN075 Gyroscopic Sundial**
Scott Alexander Smith, 15, Sophomore, Saint Marys High School, Hamilton, Ontario, Canada, T: Donna Stack-Durwood
- EN076 Robotic Revolution**
Michael Sweeney Belshaw, 19, Senior, Saint Marys High School, Hamilton, Ontario, Canada, T: Siria Szkurhan
- EN077 MEMS—Microelectromechanical Systems—Research and Development of Cell-Capture-Device**
Jonathan A. Treitel, 17, Junior, Central High School, Philadelphia, Pennsylvania, T: Dennis Erlick
- EN078 Use of Linear Induction Rotators to Obtain Composite Materials**
Denis P. Stepanenko, 16, Junior, Secondary School #4, Lyantor, Russia, T: Valery M. Eskov
- EN079 Sail Aerodynamics and Force Vectors**
William E. Dolan, 15, Sophomore, St. Anselm's Abbey School, Washington, District of Columbia, T: Herbert T. Wood
- EN080 Digital Flash Modulation for Data Transmission**
Ryan Joseph Bienvenu, 16, Sophomore, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Sheryl Thomas
- EN081 Bicycle Helmets and Our Children**
Irma de Jesus Mendoza, 18, Senior, Science Academy of South Texas, Mercedes, Texas, T: Lisa Ashley
- EN083 New Materials—New Millennium—Liquid Crystalline Precursors for High Thermal Conductivity Carbon Fibers and Composites**
Michael Jeremy Zurat, 17, Senior, Hilton Head High School, Hilton Head Island, South Carolina, T: Kathryn Howard
- EN084 High-Strength Concrete—Bridge Spans Minus Rebar Reinforcement: Four-Year Study**
Matthew Dale Langston, 17, Junior, Tishomingo County High School, Iuka, Mississippi, T: Bobby Lowery
- EN085 White Paving Stones—New Material for Construction Made by Quartziferous Sandstones**
Yudith Nazarena Medina, 16, Junior, Instituto Argentino - Arabe, SM Tucuman, Tucuman, Argentina, T: Marta E. Dib
- EN301T Strength of Mechanically-Stabilized Walls**
Matthew T. Zaleski, 17, Junior
Arnold Saha, 17, Senior
Bellevue High School, Bellevue, Florida
T: Holly Cahill
- EN302T Jet Engine Mechanics: Two-Year Study**
John Timothy Cook, 18, Senior
Erin Marie Hanna, 17, Senior
Americas High School, El Paso, Texas
T: Sandra Reinhardt
- EN303T Random Orientations of Wires in Composites**
Levi Seth Klausner, 15, Freshman
Luke William Klausner, 17, Junior
Woodlin High School, Woodrow, Colorado
T: Nancy Gettman
- EN304T Don't Rock the Boat: Phase II**
Barrett Christopher Boutte, 17, Junior
Julie Michelle Roy, 17, Junior
Catholic High School, New Iberia, Louisiana
T: Donald Voorhies
- EN305T Need for Speed: Two-Year Study**
Katherine LeAnn Barkey, 18, Senior
Rebecca Lynn Hayman, 17, Senior
Lincoln Park Academy, Fort Pierce, Florida
T: Judy Megaw
- EN306T Gyroscopic Rocket Stabilization**
Brian T. Wetherald, 14, Freshman
Grant Craig Livingston, 15, Freshman
Alamogordo Senior High School, Alamogordo, New Mexico
T: Robert C. Tinguely
- EN307T More Layers, More Strength?**
Staci Kristen Pack, 15, Sophomore
Lesley Danielle Grimes, 15, Sophomore
Drew Central High School, Monticello, Arkansas
T: Dennis Thurman
- EN308T Visualized Piano Tuner Using the Modified Even-Tempered Tuning System**
Song Li, 18, Senior
Yu Zhang, 18, Senior
Xiaoning Meng, 18, Senior
The First Middle School Attached to Beijing Normal Univ., Beijing, China
T: Deqing Wang
Beijing Electronic Industry School, Beijing, China
T: Baoquan Kang
- EN309T Design and Development of Temporary Shelter for Use in a Disaster Situation**
Mark D. Gebel, 17, Junior
David Strauss, 15, Sophomore
Prameet H. Shah, 17, Junior
Smithtown High School, Smithtown, New York
T: Elaine Champey
- EN310T Shake, Rattle and Roll**
Jason Lee Garza, 15, Freshman
Dustin James Krnavek, 15, Freshman
Banquete High School, Banquete, Texas
T: Michael Reichle
- EN311T Active Solar Tracker—Cadmium Sulfide Photo Conductive Cells Sensor Tracking System**
Paul James Sagona, 17, Junior
Bevin Lorraine Hutcheson, 16, Senior
Crestwood High School, Sumter, South Carolina
T: Robert Barth
- EN312T Millennium Refrigerator**
Keith Lam, 17, Senior
Marbury Lau, 17, Senior
Redeemer Baptist School, Sydney, NSW, Australia
T: Stuart M. Garth
- EN313T Hidropolis**
Emiliano Morcos, 17, Senior
Leandro Javier Manzano, 17, Senior
Eduardo Sebastian Giner, 17, Senior
Escuela Normal Gral. Toribio de Luzuriaga, Tunuyan, Mendoza, Argentina
T: Hugo Cirolia
- EN314T Optimization of a Marine Propeller for Maximum Thrust**
Travis Scott De Jong, 18, Senior
Matthew David Ruter, 18, Senior
Unity Christian High School, Orange City, Iowa
T: Mark Kauk

- EN315T Stepper Lineal Motor**
Gabriel Dal Pietro, 18, Senior
Nestor Chocobar, 19, Senior
T: Carlos Horacio Killy
Escuela Provincial de Educacion Tecnina No.8, Neuguen,
Neuguen, Argentina
- EN316T Electromagnetic Propulsion— Accelerating to a Changing World**
Rogelio Rene Sanchez, 17, Senior
Arturo Palacios, Jr., 18, Senior
Christopher Erick Rios, 18, Senior
J.W. Nixon High School, Laredo, Texas
T: Luis Manuel Villarreal
- EN317T Achieving Optimal Transistor Frequency Through Auxiliary Liquid Cooling**
Andrew Ricard Lague, 17, Senior
Nathan Walter Wulf, 18, Senior
Hilton Head High School, Hilton Head Island, South Carolina
T: N. Kathryn Howard
- EN318T Study of Radio Control by Means of Spark Discharge**
Daisuke Kazama, 16, Sophomore
Akihiro Kanda, 16, Sophomore
Takayuki Shibata, 16, Sophomore
Chiba-Kenritsu Funabashi High School, Funabashi-City, Chiba-Ken, Japan
T: Mitsuharu Oyama

ENVIRONMENTAL SCIENCE

GRAND AWARDS PRESENTED BY: ENVIRONMENTAL PROTECTION AGENCY

- EV001 Land Use—Effects on the Aquatic Environment of *Poecilia reticulata***
Tessa K. Munekiyo, 15, Sophomore, Henry Perrine Baldwin High School, Wailuku, Hawaii, T: Barbara Huntley
- EV002 Effects of UV Radiation on *Euglena gracilis* to Simulate Ozone Depletion in an *in vitro* Environment**
Ryan Douglas Brainard, 17, Senior, F.W. Springstead High School, Spring Hill, Florida, T: Lisa Dickinson
- EV003 Effect of Delayed Incubation on the Metamorphosis of the *Danus plexippus***
Kate Alyce Wilson, 14, Freshman, Hudson High School, Hudson, Florida, T: Yvonne Whatley
- EV004 Nitrate Removal From Drinking Water Using Elemental Iron**
Ashley Eran Blazina, 17, Junior, Osceola High School, Kissimmee, Florida, T: Nancy Evers
- EV005 Effects of High Phosphorus Levels in the Everglades—Implications for Restoration: Three-Year Study**
Natalie Elisse Bentolila, 17, Junior, Cooper City High School, Cooper City, Florida, T: Douglas T. Ferraro
- EV006 Freshwater—Saltwater Interaction in the Florida Everglades**
Brian Lee Kindinger, 18, Senior, Lakewood High School, Saint Petersburg, Florida, T: Paul H. Dickman
- EV007 Susceptibility of *Ceratitis capitata*, *Dacus dorsalis* Hendel and *Dacus curcurbitae* Coquillett to Neem Extract, Dicofol and Pyrethrin**
Starlyn Leinani Mitsuko Okada, 17, Senior, James B. Castle High School, Kaneohe, Hawaii, T: Sandra Linskey
- EV008 Investigating Southwest Florida Water Quality Through Ecophysiology of *Pontederia cordata*: Phase V**
Brandon J. Kingsbury, 16, Sophomore, Fort Myers High School, Fort Myers, Florida, T: Pat Kolebas
- EV009 Welcome to the Collembola Cafe—Effects of Collembola on *Phytophthora infestant sporangia***
Milena Evangelina Pastore, 16, Sophomore, Monte Vista Senior High School, Monte Vista, Colorado, T: Gary Wilkinson

- EV010 Acid Mine Drainage Remediation Methods and Effectiveness**
Natalie A. Kruse, 15, Junior, Athens High School, The Plains, Ohio, T: Phil Armstrong
- EV011 *Eichornia crassipes*—Biological Treatment of Wastewater: Five-Year Study**
Adam Douglas Smith, 16, Sophomore, Stone High School, Wiggins, Mississippi, T: Jane A. Paslay
- EV012 Photocatalytic Degradation of *N*-Nitrosodimethylamine in Water on TiO₂**
Hayley Han Li, 17, Junior, Bartlesville High School, Bartlesville, Oklahoma, T: Betty A. Henderson
- EV013 Neutron Activation Analysis of Toxic Chemicals Found in Fish Muscle Tissue in Estuarine Environments**
Amit Harshad Patel, 16, Sophomore, Lecanto High School, Lecanto, Florida, T: Ronald Worthington
- EV014 Development Attempts Against Sinkholes at the Hydrographic Basin of the Laguna Tortuguero: Phase IV**
Haniel Velez-Rosario, 15, Sophomore, Fernando College, Manati, Puerto Rico, T: Edna D. Rosa
- EV015 Does a Correlation Exist Between Private Well Water Quality and *H. pylori*? Three-Year Study**
Thaddeus Jason Riley, 16, Sophomore, Statesboro High School, Statesboro, Georgia, T: Jackie Gay
- EV016 Pesticide Presence in Lost River—Surface, Underground Streams and Organochlorines Within Sediment Corings**
Morgan Danielle Dusch, 17, Senior, Paoli Junior-Senior High School, Paoli, Indiana, T: William Anderson Jr.
- EV017 Adverse Effects of Single Toxicity of Agricultural Herbicides on Different Trophic Levels Within an Aquatic Ecosystem: Two-Year Study**
Tanner Michael Callender, 16, Sophomore, Wamego High School, Wamego, Kansas, T: Terry Callender
- EV018 Effects of Commercial Pesticides on *Lumbricus terrestris***
Jennifer J. Anderson, 17, Senior, Montevideo Senior High School, Montevideo, Minnesota, T: Richard Halterman
- EV019 Benthic Macroinvertebrate Sampling Sites: Phase II**
Alyssa Mae Anderson, 16, Sophomore, Lake Crystal Wellcome Memorial High School, Lake Crystal, Minnesota, T: Bart Johnson
- EV020 Zebra Mussels—Bio-Indicators of Heavy Metal Contamination in the Arkansas River: Phase II**
Mark Edward Jackson, 15, Sophomore, Sheridan High School, Sheridan, Arkansas, T: Wanda Bush
- EV021 Effects of Synthetic and Organic Treatments on Soil and Runoff Quality and Plant Growth When Applied to Tilled and No-Till Fields: Three-Year Study**
Rebecca Elizabeth Myers, 18, Senior, Sylvania Southview High School, Sylvania, Ohio, T: Penny Cobau
- EV022 Lint Mats—Attempt to Control Fluvial Erosion: Two-Year Study**
Jennifer Marie Boyd, 18, Senior, Colquitt County High School, Moultrie, Georgia, T: Tommy Hall
- EV023 Biopellet Fuel**
Landon Turner Lasseter, 17, Junior, Colquitt County High School, Moultrie, Georgia, T: Tommy Hall
- EV024 Water Quality Assessment of Agriculturally Affected Creek Compared to a Least Impacted Creek: Phase II**
Kelly Marie Schmiedt, 16, Junior, Little Falls Community High School, Little Falls, Minnesota, T: Wayne Pikal
- EV025 Invertebrate Abundance and Diversity in Andean Ecuador—Variations in Habitat Fragments, Agricultural Areas, Rural and Urban Settings**
Mark Louis Galatowitsch, 18, Senior, Highland Park Senior High School, St Paul, Minnesota, T: Arthur Payne
- EV026 Environmental Impact of Poultry Litter Fertilizer on Watersheds: Two-Year Study**
Lindsey Diane Fimple, 16, Sophomore, Vinita High School, Vinita, Oklahoma, T: Monica Fimple
- EV027 Micro-Sensor System for Monitoring and Controlling SO₂ Emissions: Two-Year Study**
Ann Lai, 15, Junior, Hathaway Brown School, Shaker Heights, Ohio, T: Patricia Hunt

- EV028 Wetlands—Natural Cleaning Process: Two-Year Study**
Evan Phillip Peschel, 16, Junior, Seguin High School, Seguin, Texas, T: Donna Boelter
- EV029 Plants to the Rescue—Bioremediation of Lead Contaminated Soil**
Eric D. Shah, 14, Freshman, Dunbar High School, Fort Worth, Texas, T: Dinesh M. Shah
- EV030 Ozone's Buddy**
Erin Marie Steib, 17, Senior, Saint James High School, St. James, Louisiana, T: Kermit Gauthreaux
- EV031 From Alien Weed to Gourmet Dish**
Jandri Elizabeth Barnard, 16, Junior, Newcastle High School, Newcastle, Kwazulu-Natal, South Africa, T: M. Liebenberg
- EV032 Effects of Leaf Type, Site Selection and Leaf Pack Removal Time on Stream Ecology**
Sara Marie Raser Palmer, 18, Senior, Addison High School, Addison, Michigan, T: Bud Ellis
- EV033 Improvement of Air and Water Quality From Industrial Swine Facilities: Two-Year Study**
Leah Michele Gregg, 18, Senior, Westmoore High School, Oklahoma City, Oklahoma, T: Bradley O. Brauser
- EV034 Effects of *Thiobacillus ferrooxidans* on Acid Mine Drainage and Copper Wire**
Amanda Lee Ullmer, 14, Freshman, Northwestern High School, Kokomo, Indiana, T: Patricia Zeck
- EV035 All Washed Up—Up the Creek With Nothing to Drink: Part III**
Dean Tuck, 16, Sophomore, Jasper High School, Plano, Texas, T: Angela Kollmann
- EV036 Effects of Long-Term Elevated Atmospheric CO₂ on Soil Structure and Glomalin Levels**
Egan Alfred Jankowski-Bradley, 17, Senior, Sentinel High School, Missoula, Montana, T: Dick Holmquist
- EV037 Plant Growth in the Blue Lagoon**
Vanessa Lyn Wilkerson, 18, Senior, Brookfield R-3 High School, Brookfield, Missouri, T: Stuart McMains
- EV038 Laser-Induced Fluorescence to Detect and Quantify Motor Oil Contamination in Soil and Water**
Robert Wadt Mulcare, 18, Senior, Greenwich High School Sheldon House, Greenwich, Connecticut, T: Ray Hamilton
- EV039 Gone With the Wind: Phase II**
Margaret W. Henry, 16, Sophomore, Glynn Academy, Brunswick, Georgia, T: Ingrid Brown

- EV040 Effect of Seasonal Changes on Benthic Marine Invertebrates Inhabiting Sandy Areas of Eagle Pond, CT: Phase II**
Jacek Jarczynski, 18, Senior, Townsend Harris High School/Queens College, Flushing, New York, T: Brendan Curran
- EV041 Lead—Imminent Hazard**
Carolina Isabel Guerra, 14, Sophomore, Albert Einstein School, Lima, Peru, T: Moises E. Guerra
- EV042 Effects of Water Pollution on Phytoplankton Productivity #**
Christopher Clay Stowers, 18, Senior, Bradshaw High School, Florence, Alabama, T: Jennifer Gray
- EV043 Livestock Manure Contamination in Groundwater of West Alabama**
Mary Elizabeth Cole, 14, Freshman, Demopolis High School, Demopolis, Alabama, T: Mary Thomaskutty
- EV044 Effect of Electronic Toll Collection on Vehicular Carbon Monoxide Emissions**
Benjamin J. Cole, 15, Freshman, Coral Reef Senior High School, Miami, Florida, T: Barbara Zeiler
- EV045 Increased Antimicrobial Resistance in Rhizosphere Microorganisms After Acid Rain Exposure: Two-Year Study #**
Kelly Renee Merrick, 18, Senior, Quincy Senior High School, Quincy, Illinois, T: Karen Carper
- EV046 In situ Phytoremediation of Petroleum Contaminated Soil**
Amanda Teresa Chavez, 16, Junior, Taos High School, Taos, New Mexico, T: Agapito Griego
- EV047 Replenishment Oysters for the Chesapeake Bay—Factors Affecting Survival and Growth**
Katherine Frances Holt, 16, Sophomore, Bruton High School, Williamsburg, Virginia, T: Emil V. Davis
- EV048 Factors Controlling Forest Litter Decomposition: Phase III #**
Emmalisa Bautista Sparrow, 17, Junior, Monroe Catholic High School, Fairbanks, Alaska, T: Rebecca Gilbert
- EV049 How Chemical Surfactants Affect Oil Spills?**
Benjamin Ross Tuxhorn, 15, Freshman, Juneau-Douglas High School, Juneau, Alaska, T: Jonathan Smith
- EV050 Pressure is on the Pasture**
Greg William Shepherd, 18, Senior, West Central High School of Stuart, Stuart, Iowa, T: Larry Schwinger
- EV051 Environmental Study of Lake Dardanelle—Zebra Mussels vs. Macro Invertebrates ##**
Jerry Don Kelley, 17, Junior, Alma High School, Alma, Arkansas, T: Bill Mullins
- EV052 Treated Wastewater Environment: Seven-Year Study #**
Melissa Renee Baumann, 17, Senior, C.H. Yoe High School, Cameron, Texas, T: Toni Lafferty
- EV053 Environmental Impact of the Federal Canal Project**
Jose Ignacio Rubiolo, 14, Freshman, Dr. N. Avelaneda High School, San Francisco, Cordoba, Argentina, T: Claudia A. Maine
- EV054 Biotic and Abiotic Features of Wetlands in Royal Palm Reserve in Negril**
Fabian Omar Morris, 18, Senior, Knox Community College, Clarendon, Jamaica, T: Errol C. Miller
- EV055 Lungs in a Can**
Bridget Ann Sellers, 18, Senior, Smith Valley High School, Smith, Nevada, T: Randi Hunewill
- EV056 Effects of Ivermectin on Dung Fauna Diversity**
Crystal Lynn Gammon, 17, Junior, School of the Osage, Kaiser, Missouri, T: Constance Wyrick
- EV057 In situ Bioremediation vs. Bioaugmentation**
Tanner J. Brunsdale, 16, Sophomore, Bountiful High School, Bountiful, Utah, T: Dwight Brown
- EV058 Effects of *Quillaja saponaria* on the Seed Germination and Growth of *Brassicarapa***
Crystal Ray Weber, 15, Freshman, Roy High School, Roy, Utah, T: Kathleen Ochslein
- EV059 Factors Controlling Desorption and Assimilation Efficiencies of Sediment-Associated Contaminants in Deposit-Feeding Invertebrates: Two-Year Study #**
Jonathan Hertz, 18, Senior, Half Hollow Hills High School East, Dix Hills, New York, T: Raymond McGraine
- EV060 How Should Students Use Correction Pens Correctly?**
Chang Liu, 16, Sophomore, Beijing Jingshan School, Beijing, China, T: Huilan Li
- EV061 Epiphytic Lichen's Communities in Urban Conditions on an Example of Votkinsk City**
Alexandra S. Malysheva, 16, Junior, Votkinsk Lyceum, Votkinsk, Udmurt, Russia, T: Pakhomov Vladimir Vitalievich
- EV062 Effects of the Construction of the P.R.-53 Highway in Yabucoa's Wetlands**
Gladys Medina Rivera, 17, Senior, Luis Munoz Marin High School, Yabucoa, Puerto Rico, T: Carmen O. Reyes
- EV063 "Watch Those Waves"—Oceanography Multistudy of Environmental Pollutants**
Morgan Leigh McPhail, 17, Senior, West Lauderdale High School, Collinsville, Mississippi, T: Nettie Mayatt
- EV064 Low LET Radiation Induced Apoptosis in the NTERA-2 Neuronal Cell Line**
Andrew Charles Pelzer, 18, Senior, Manhasset Junior-Senior High School, Manhasset, New York, T: Peter Guastella
- EV065 Three Stations in the Turabo River**
Lester R. Ojeda, 16, Junior, Dr. Juan J. Osuna, Caguas, Puerto Rico, T: Maria Velez
- EV066 Catalytic Innovation in Diesel Engines for Biofuel Applications**
Fernando Yaninello, 20, Senior, E.E.T. No. 2 Quilmes Paula A. de Sarmiento, Don Bosco, Buenos Aires, Argentina
- EV067 *Eichornia crassipes*—Raw Material for the Production of the Paper: Phase IV**
Eneida Lopez, 18, Senior, Luis Munoz Marin High School, Barranquitas, Puerto Rico, T: Leticia Rodriguez
- EV068 Predominant Uses of Lands in 1950 of Areas That Are Actually Secondary Forests: Two-Year Study #**
Angel L. Santiago, 16, Junior, Superior Francisco Morales, Naranjito, Puerto Rico, T: Aurea B. Saez
- EV069 Anaerobic Denitrification: Phase II**
Stephanie Kristen Flowers, 18, Senior, Central High School, Evansville, Indiana, T: Beverly Moody
- EV070 Pyrolysis-Gas-Chromatograph Mass Spectrometry to Distinguish Animal Sources of *E. coli* in Water**
Meredith Marie Lee, 18, Senior, Leland High School, San Jose, California, T: Steve Schlink
- EV071 Application of Generalized Cranberry Bog Fertilizer and Its Relationship to Pond Eutrophication in Southeastern Massachusetts**
Jillian Elyse Spangler, 15, Sophomore, Plymouth South High School, Plymouth, Massachusetts, T: Kathryn M. Marks
- EV072 Benthic Macroinvertebrates and Sediment Analysis as Indicators of Inorganic Stream Pollution: Two-Year Study #**
Ryan H. Grulke, 18, Senior, Boone Grove Senior High School, Valparaiso, Indiana, T: Ken Snow
- EV073 Dursban and Malathion—Their Relationship to Cholinesterase in *Gallus gallus domesticus***
Jeanine Rae Wilson, 15, Freshman, Tahoka High School, Tahoka, Texas, T: Cathy Box
- EV074 Metal Analysis of the St. Clair River Using Tissue of *Dreissena polymorpha* as a Bioindicator for Cr, Pb and Hg**
Elizabeth Kathleen Schreiner, 16, Sophomore, Marine City High School, Marine City, Michigan, T: Terry Parks
- EV075 Soil Characteristics of Logan County, Kentucky**
Kayela Lynne Wilkins, 15, Sophomore, Russellville High School, Russellville, Kentucky, T: Shawn Sansom
- EV076 Use of Biofiltration for the Decontamination of Water: Three-Year Study**
Patrick Harvey Black, 18, Senior, Weir High School, Weir, Mississippi, T: JoAnne Reid
- EV077 Correlating Residual Antibiotic Levels in Public Water to *in situ* Drug-Resistant *E. coli*—Is Remediation an Option?**
Ashley Michelle Mulroy, 17, Junior, The Linsly School, Wheeling, West Virginia, T: John H. Bisbocci
- EV078 Sunflowers—Productive Alternative for Removing Lead From Contaminated Soil: Three-Year Study #**
Kyle F. Usbeck, 16, Sophomore, Wilson High School, Reading, Pennsylvania, T: Michael P. Gerhart

- EV079 Effects of Mining on Park City Soil**
Taylor Reid Hemming, 15, Freshman, Park City High School, Park City, Utah, T: Edward Mulick
- EV080 Air Particulate Monitoring of Rural Environments: Two-Year Study**
Cara Olson, 17, Junior, Millard High School, Fillmore, Utah, T: Steve Lambertson
- EV081 Improving the Mechanical Properties of Zein Film to Match the Performance of Petrochemical Diaper Polymers: Phase III**
Rishi Sahai Vasudeva, 16, Junior, Roswell High School, Roswell, Georgia, T: Larry Chappell
- EV082 Bacterial Bioremediation of Oils in Two Ecological Settings**
Stephanie Amalia Lucca, 17, Junior, Joseph Case High School, Swansea, Massachusetts, T: Robert Eddy
- EV083 Compost—Turn Your Spoils Into Soil**
Martha Lea Goodman, 15, Freshman, New Hartford Senior High School, New Hartford, New York, T: Rosalie Accattato
- EV084 Organic Energy—Cleaning Up the Air**
Joseph Louis Corsetti, 17, Senior, Benjamin O. Davis Junior Technology High School, Detroit, Michigan, T: David G. Koslowsky
- EV085 Surfactant Solubilization of Polyaromatic Hydrocarbons**
Linsey Michelle Brown, 17, Senior, Cass Technical High School, Detroit, Michigan, T: Lenora Ashford
- EV086 Bacteriological Screening of Rio Espiritu Santo—Water Flow Speed and Microbial Diversity of River Sediment**
Yara H. Sotolongo Diaz, 14, Freshman, SU Rafael Rexach Dueno, San Juan, Puerto Rico, T: Angel L. Diaz Rosario
- EV087 More Than Just Milk?**
Jacob B. Seppanen, 17, Junior, Hamlin High School, Hayti, South Dakota, T: Christine A. Owen
- EV088 Aquatic Herbicides—Copper Sulfates Latent Effect on Primary Consumers: Three-Year Study**
Clifton Wayne Garabedian, 17, Junior, Clovis West High School, Fresno, California, T: Charles Chortanian
- EV089 Lead Content in Apple Juice**
Courtney Brooke Jeter, 18, Senior, Gleason High School, Gleason, Tennessee, T: Betty H. Jackson
- EV090 Contamination of Fecal Coliform in Toruguero Lagoon**
Carol J. Diaz, 14, Freshman, Sotero Figueroa Intermediate School, Rio Piedras, San Juan, Puerto Rico, T: Vilma I. Rodriguez
- EV091 Canola Car**
Nicholas Robert Oberlin, 16, Sophomore, Stryker High School, Stryker, Ohio, T: Shannon Lamb
- EV092 Effects of Sodium Phosphate, Sodium Nitrate and Ammonium Nitrate on the Growth and Reproduction of LEMNA: Two-Year Study**
Jennifer Joy Larson, 17, Senior, Hillsboro High School, Hillsboro, North Dakota, T: John Elkins
- EV093 Repairing Ultra-Violet-Damaged DNA With Different Light Sources**
David A. Knorr, 16, Sophomore, Velva Public School, Velva, North Dakota, T: Wendy Peterson
- EV094 Pristine Water and the Great American Lawn—Can They Co-Exist?**
Tamra Laraine Ward, 16, Sophomore, Childersburg High School, Childersburg, Alabama, T: Joyce Taylor
- EV095 Ecological Assessment of the Carton-and-Paper Production Waste by Bioassays**
Dmytro Romanenko, 16, Junior, Secondary School N 78, Kiev, Ukraine, T: Nadia Avramenko
- EV096 Does EMR Affect *Drosophila melanogaster*?**
Rocio Moya, 17, Junior, Martin High School, Laredo, Texas, T: Lizzy Newsome
- EV097 River Runs Through It—Riparian Ecosystem Along the Middle Rio Grande Bosque: Phase II**
Nathan Thomas Tooker, 16, Sophomore, Los Lunas High School, Los Lunas, New Mexico, T: Kathleen Percy
- EV098 pH Gradient Determination From Moron to Valencia in Carabobo and its Relation With Acid Rain Formation**
Anny Siled Lopez, 14, Freshman, Instituto Educacional Juan XXIII, Valencia, Carabobo, Venezuela, T: Delys Gomez
- EV099 Purification of the Cabriales River at Valencia, Venezuela Using an Organic Filter**
Adriana Jimena Cortes Jimenez, 16, Sophomore, Instituto Educacional Juan XXIII, Valencia, Carabobo, Venezuela, T: Delys G. Gonzalez
- EV100 Inhibition of *Lolium multiflorum* and *Brassica napus* by Volatile Organic Compounds**
Matthew David Borgen, 17, Junior, Lake Park/Audubon High School, Lake Park, Minnesota, T: Michael Wichmann
- EV101 Thermomineral Groundwaters of Lamadrid—Control of Their Quality**
Evangelina Soledad Valdez, 16, Junior, Escuela de Educacion Integral Sermiento, Juan B. Alberdi, Tucuman, Argentina, T: Hugo C. Valdez
- EV301T Perilous Pilings—Minimizing Leaching of Copper Oxide From CCA-Treated Marine Pilings: Two-Year Study**
Jennifer Ilene Johns, 14, Freshman
Jonathan Breaux Taylor, 14, Freshman
Fort Myers High School, Fort Myers, Florida
T: Michele Richardson
- EV302T It's Not Easy Being Green**
Lazaro Gonzales, Jr., 18, Senior
Sarah Beth Miller, 18, Senior
Muskogee High School, Muskogee, Oklahoma
T: Karla Ford
- EV303T Oil Spill in a Jar**
Sarah Brittany Bounds, 14, Freshman
Carli Anne Resler, 14, Freshman
Mercy Cross High School, Biloxi, Mississippi
T: Deborah Worrel
- EV304T Fertilizing Plants to Death**
Ashley Rochelle Chapin, 16, Sophomore
Kendal Wallis Bauman, 15, Sophomore
Pawnee High School, Grover, Colorado
T: Carrie Erickson
- EV305T Design and Development of In-Line Chitin Filter for Heavy Metals**
Geoffrey Chua Loy, 18, Senior
John Paul Rowan, 18, Senior
Neil Huguenin Victor, 18, Senior
Savannah Country Day School, Savannah, Georgia
T: Scott Elliott
- EV306T Phytoremediation—CU in the Garden**
Kevin Huang, 16, Sophomore
Daniel Jim Wang, 16, Sophomore
Jasper High School, Plano, Texas
T: Angela Kollmann
- EV307T Shellac Industry Waste as a Chelating Agent for Uptake of Micronutrients by Plants**
Sameep Agrawal, 16, Junior
Sarvesh Rathore, 16, Junior
Christ Church Boys' Senior Secondary School, Jabalpur, Madhya Pradesh, India
T: Sanjay D. Judah
- EV308T Beginning of a Native Species Extinction, Zebra Mussels vs. Freshwater Mussels: Phase II**
Alaina Joan Oas, 18, Senior
Noelle Joan Oas, 15, Freshman
Winona Senior High School, Winona, Minnesota
T: Jerry Foster
- EV309T Effect of Anthraquinone on Sulfide Biooxidation by Nitrate**
Andrew R. Harshman, 17, Senior
Christopher David Hunniford, 17, Junior
Sarasota High School, Sarasota, Florida
T: James P. Harshman
- EV310T Baseline Technique for Detecting Quantities of Chemicals Within Environmental Tobacco Smoke: Phase V**
Justin James Leonard, 17, Junior
Michelle Leigh Leonard, 17, Junior
Salisbury High School, Salisbury, North Carolina
T: Bill Lee

- EV311T Purification Research of Air Pollution in Air Conditioned Room**
Juemin Zhu, 18, Senior
Hao Wang, 17, Senior
Yongrong Hou, 18, Senior
No. 2 Secondary School Attached to East China Normal Univ., Shanghai, China
T: Peiyu Ye
- EV312T South Manchester Coastal Resources**
Antionette Shenah N. Reid, 18, Senior
Rhonda Marcello Mahon, 20, Senior
Tanisha Alicia Albert, 19, Senior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- EV313T Mulching for Survival**
Marie Cassandra Anderson, 19, Senior
Karen Diana Turner, 20, Senior
Kernan Monigue Wilson, 18, Senior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- EV314T Recycling Drink Cartons**
Sarah Elizabeth Broadbent, 15, Sophomore
Sofie Gravers Jacobsen, 17, Junior
European School Bergen, Bergen, NH, Netherlands
T: David J. Broadbent
- EV315T Strength in Recycled Fiber: Two-Year Study**
Karen Renee Hammonds, 16, Junior
Lindsey Kay Stadler, 17, Junior
Minerva High School, Minerva, Ohio
T: Molly Winters
- EV316T Comparison of the Management of Landfills of Humacao and Juncos and Community Opinion**
Vivian M. Lebron, 14, Freshman
Sonaris Molina, 14, Freshman
Juan Ponce De Leon High School, Humacao, Puerto Rico
T: Nelson V. Reyes
- EV317T Anatomofunctional Study of the Bivalves Species *Prothotaca taca* and *Venus antiqua* Biological Importance**
Loreto Elizabeth Marro, 14, Freshman
Carolina Constanza Salazar, 14, Freshman
Colegio de la Salle de Temuco, Temuco, Novena Region, Chile
T: Maria Angelica Baier
- EV318T Telematic Village**
Matteo Pastorino, 19, Senior
Egle Moriggia, 20, Senior
Gabriele Moncalvo, 20, Senior
P.L. Nervi, Alessandria, Italy
T: Gianfranco Lenti
- EV319T Bio-Augmentation of *Pseudomonas sp.* in Various Soil Profiles: Two-Year Study**
Krisda Chaiyachati, 17, Junior
Emem Inyang Adolf, 17, Junior
Columbia High School, Decatur, Georgia
T: Francis D. Copeland
- EV320T Environmental Effects of Chemicals on Sea Urchin Embryos: Three-Year Study**
Smith Sirisakorn, 17, Senior
Heng Sao Tea, 17, Senior
California Academy of Math & Science, Carson, California
T: Thomas Jett
T: Carrie Wolfe
- EV321T Ability of Ryegrass to Effectively Decontaminate Soil From Strong pH Levels of Acid Rain**
Sandra Lynn Oldaker, 18, Senior
Christina Louise Gwin, 18, Senior
Amador Valley High School, Pleasanton, California
T: Eric Thiel
- EV322T Efficiency of Citric Acid as a Larvicide for the Mosquito *Aedes aegypti***
Reinaldo Luis Figueroa, 18, Senior
Luis Angel Seda, 17, Senior
Glorimar Molina, 18, Senior
University Gardens High School, San Juan, Puerto Rico
T: Maria E. Andino
- EV323T Soybean Fuel—Alternative to Marine Life and Terrestrial Protection**
Bernice Acevedo Marcano, 15, Sophomore
Veronica Vero Diaz, 16, Sophomore
Colegio La Piedad, Carolina, Puerto Rico
T: Pedro J. Martinez-Torres
- EV324T Determining Suitability of Leeward O'ahu Streams for the Reintroduction of O'opu Freshwater Gobi**
Reuban Arreola-Sotero, 17, Junior
Jonathan Laurence Valdez, 15, Sophomore
Waianae High School, Waianae, Hawaii
T: Linda Gallano
- EV325T Nitrate Use in Activated Sludge Waste Water Treatment Plants Under Oxygen Depletion**
Bernal A. Hernandez, 18, Junior
Horacio Isaac Araya, 16, Junior
Greivin M. Perez, 17, Junior
Colegio Cientifico Costarricense Sede San Carlos, San Carlos, Alajuela, Costa Rica
T: Adolfo Chaves
- EV326T Investigation of the Niche Separation of Species of Rabbittfish at Lizard Island**
Polly S. Fraser, 18, Senior
Megann Gabrielle Harbaugh, 17, Junior
Mecosta Osceola Math, Science and Technology Center, Big Rapids, Michigan
T: Matt Williams
- EV327T Automobile Oil Spills on the Marine Ecosystems**
Leny Virginia Bolivar, 15, Sophomore
Zully Viviana Moreno, 14, Sophomore
Instituto Educacional Juan XXIII, Valencia, Carabobo, Venezuela
T: Delys Gomez

GERONTOLOGY

GRAND AWARDS PRESENTED BY: AARP ANDRUS FOUNDATION

- GN001 With Age Comes Wisdom? Selected Diets of Senior Citizens vs. Younger Adults in Laramie, WY: Three-Year Study**
Heather Jo Dixon, 15, Freshman, Rock River High School, Rock River, Wyoming, T: Freda M. Dixon
- GN002 Influence of Sex Hormones on Development of Bone Cancer**
Benjamin Charles Beranek, 16, Sophomore, Jefferson High School, Lafayette, Indiana, T: Joe Ruhl
- GN003 DNA Structural Mutations in Pathogenic Agents Resulting From Environmental Heavy Metal Contamination**
Caroline Elizabeth Foust, 17, Senior, Miami High School, Miami, Oklahoma, T: John Foust
- GN004 *Drosophila* Aging—Temperature Variation on the Mortality Rate of Early, Middle and Late Reproduced Adults: Phase II**
Maghen Marie Petty, 16, Sophomore, Byng High School, Ada, Oklahoma, T: Deborah Cornelison
- GN005 Enhancement of PC-12 Cellular Populations by Anthocyanins From *Ericaceae***
Korri Ayn Thiessen, 14, Freshman, Gold Beach High School, Gold Beach, Oregon, T: Joel M. Kuper
- GN006 Superoxide Dismutase Benefits in *Drosophila melanogaster* Exposed to Hyperoxic Environments**
Karli Ross Echterling, 17, Junior, Saint Joseph Central High School, Saint Joseph, Missouri, T: Jay Meyers
- GN007 Hormonal Effects of 17 β Estradiol and Vitamin D on Mouse and Human Osteoblasts**
Elisa Tatiana Juarez, 16, Junior, Coral Reef Senior High School, Miami, Florida, T: Barbara Zeiler
- GN008 Effects of Nitrate, Oxygen, Ozone and Calcium Levels on Osteoporosis in Zebra Danios: Phase II**
Joshua A. Shapiro, 18, Senior, Potomac Falls High School, Sterling, Virginia, T: Marilyn H. Edmondson

- GN009 Age-Related Investigation of Ginsenosides on the Proliferation of Murine Immune Cells: Two-Year Study**
Aiden Michael Bordner, 18, Senior, R. Nelson Snider High School, Fort Wayne, Indiana, T: Barbara Gabet
- GN010 How Do Antioxidants Affect Maturation of *Peromyscus maniculatus* and *E. coli*?**
Brian Michael Reed, 15, Sophomore, Clay County High School, Clay, West Virginia, T: Patricia Coulter
- GN011 Long Telomeres in the Long-Lived Galapagos Tortoise: Two-Year Study**
Alex A. Pollen, 18, Senior, Lexington High School, Lexington, Massachusetts, T: Scott Carpenter
- GN012 Alzheimer's and its Variability by Sex and Age in Yauco**
Wilfredo Mercado, 14, Freshman, Yauco, Puerto Rico, T: Fredeswinda Rivera
- GN013 Ethnomedical Studies of *Pothomorphe peltata*: Two-Year Study**
William Eduardo Vega, 16, Junior, Colegio De La Salle, Bayamon, Puerto Rico, T: Maritza Rodriguez
- GN014 Osteoporosis Medications—Help or Hindrance?**
Francie E. Blasingame, 18, Senior, Alma High School, Alma, Arkansas, T: Rosemary Blasingame
- GN015 Vapor Exchange Wheelchair Seat: Phase II**
Christina Lynn Adams, 15, Sophomore, Bartlesville High School, Bartlesville, Oklahoma, T: Colleen Bennett
- GN016 Beta-Amyloid and Neuronal Death—Cellular Model to Understand Alzheimer's Disease**
Lissa C. Capo, 16, Sophomore, Ursuline Academy, New Orleans, Louisiana, T: Sharon Linton
- GN301T Effect of Music on Short-Term Memory of Alzheimer's Patients**
Victoria Katherine Mitchell, 16, Sophomore
Rachel Elizabeth Adams, 16, Sophomore
Bartlesville High School, Bartlesville, Oklahoma
T: Colleen G. Bennett
- GN302T Effect of Dietary Antioxidant Supplements on Behavioral and Biochemical Changes in C-57 Black 6 Mice**
Kathleen Elizabeth Rutter, 18, Senior
Nalani Adrienne Fraser, 17, Senior
Yorktown High School, Arlington, Virginia
T: Michael Zito
- GN303T Knowledge and Possible Behavior of Elderly People Toward HIV**
Ramon Esteban Martinez - Rossario, 17, Senior
Jose M. Del Valle - De Jesus, 19, Senior
Dolaida Rivera, 17, Senior
Carlos Escobar Lopez, Loiza, Puerto Rico
T: Carmen L. Ortiz
- MA006 Algorithms Using Classic Iterated "Prisoner's Dilemma" Scenario**
Kevin H. Just, 17, Junior, Montevideo Senior High School, Montevideo, Minnesota, T: Richard Halterman
- MA007 Cyclic Groups and Other Topics in Finite Field**
James Y. Zou, 15, Freshman, Upper Arlington High School, Upper Arlington, Ohio, T: Laura Brennan
- MA008 Analyzing the Iterations of Chaotic Function $A*x*(1-x)$: Phase II**
Michael Chansky, 18, Senior, Burnsville Senior High School, Burnsville, Minnesota, T: Jennifer Hugstad-Vaa
- MA009 Questioning Stonehenge's True Purpose**
Christopher Michael Hrdlicka, 16, Junior, Wentzville High School, Wentzville, Missouri, T: Mark Schatz
- MA010 C-Transformation—Introduction of a New Geometric Transformation**
Ching Tang Chen, 15, Sophomore, Taipei Municipal Chien-Kuo Senior High School, Taipei, Taiwan, T: Reng-Tang Lin
- MA011 On the Number of Special Subgraphs in a Colored or an Oriented Graph**
Szu-hsien Ho, 16, Junior, National Kaohsiung Normal University High School, Kaohsiung, Taiwan, Chinese Taipei, T: Ci-chang Wu
- MA012 Spirolaterals: Four-Year Study**
Diana Rae Eng, 16, Junior, Stanton College Preparatory High School, Jacksonville, Florida, T: Nicole Arteaga
- MA013 Four-Colour Extends to Rainbow: Two-Year Study**
Jacqueline Du Toit, 15, Sophomore, Christian and National Secondary Girls School, Bloemfontein, South Africa, T: Ria Strauss
- MA014 Recursivity—Unifying Element: Two-Year Study**
ShawnaKim Blake Lowey-Ball, 17, Junior, Stanton College Preparatory High School, Jacksonville, Florida, T: Marigene O'Connor
- MA015 Theory of Mean—Concept of "Cyclemean"**
David Zmiaikou, 17, Junior, Lyceum of BSU, Minsk, Belarus, T: Boris Zadovny
- MA016 Optimal Orbit Trajectories for Space Station Docking: Phase II**
Imelda Rose Turner, 17, Junior, West High School, Iowa City, Iowa, T: James D. Turner
- MA017 Lower Bounds for Families of 2^k -Core Generating Functions**
Brittany Marie Kirkland, 18, Senior, Big Sky High School, Missoula, Montana, T: James Harkins
- MA018 Fibonacci Sequel—Finding Hidden Relations Inside the Golden Ratio**
Erin Leigh Sandrick, 17, Junior, Farmington High School, Farmington, New Mexico, T: Ann Gattis
- MA019 Random Circle on Target**
Craig Allen Schroeder, 17, Junior, Wessington Springs High School, Wessington Springs, South Dakota, T: Kim Borkowski
- MA020 Game Theory and the Butterfly Effect**
Christopher Emhardt Wilson, 17, Junior, Charlottesville High School, Charlottesville, Virginia, T: Jenny Ferrell
- MA021 Additive Structure of the Primitive Roots Modulo—An Arbitrary Prime**
Alexander Lorbert, 17, Senior, Yeshivah of Flatbush, Brooklyn, New York, T: Joyce Fruchter
- MA022 Computer Algorithm—Nonlinear Modeling and Chaotic Dynamics to Analyze the Difference Between Sick and Healthy Cardiac Output**
Shannon Leigh McNulty, 18, Senior, Park View High School, Sterling, Virginia, T: Denise Wingfield
- MA023 Interplanetary Spacecraft Trajectories**
Will B. Dicharry, 17, Senior, Saint Pius X High School, Albuquerque, New Mexico, T: Jim P. Carrie
- MA024 Pseudo-Pythagorean Triples**
Jenna M. Lanoff, 18, Senior, Taos High School, Taos, New Mexico, T: Ron Payton
- MA025 Pure Chaos—Chaos Dynamics and Fractal Geometry**
James Clifton Terry, 16, Junior, Noblesville High School, Noblesville, Indiana, T: Charles Emmert

MATHEMATICS

GRAND AWARDS PRESENTED BY:

PANASONIC CONSUMER ELECTRONICS COMPANY

- MA001 Pythagorean Triplets—New Dimension**
Tuan Dinh Nguyen, 16, Sophomore, Classen School of Advanced Studies, Oklahoma City, Oklahoma, T: Shelley Hunter
- MA002 Lottery... Is It Really Random?**
Sara Gayle Alvarez, 16, Sophomore, Wildwood High School, Wildwood, Florida, T: Emily M. Keeler
- MA003 Chronic Correlations?**
Julie E. Banasiak, 14, Freshman, Bartlesville High School, Bartlesville, Oklahoma, T: Beverly McIntosh
- MA004 Discovering and Proving Facts Among Fibonacci Numbers**
Jason Wah Lone Chiu, 14, Junior, Laramie Senior High School, Laramie, Wyoming, T: Bryan L. Shader
- MA005 Graphical Invariant Sequences**
Meghan E. Winger, 15, Sophomore, Lake Highland Preparatory School, Orlando, Florida, T: Judith Legault

- MA026 New Discovery on the Counterfeit Coin Problem**
Zhiren Wang, 15, Junior, High School Attached to Fudan University, Shanghai, China, T: Jieliang Wang
- MA027 Codemaker—Codebreaker**
Curtis Edward MacDonald, 17, Junior, Trinity School Of Midland, Midland, Texas, T: Jana Hinkley
- MA028 Dynamics of the Non-Spatial Iterated Prisoner's Dilemma With a Continuous Range of Strategies and Populations**
Daniel Ian Rosenbloom, 17, Junior, Great Neck South High School, Great Neck, New York, T: Richard Soviero
- MA029 Reciprocity Laws Establishing the Quadratic Character of Remainder Classes in Fields**
Zachary Howard Cohn, 17, Senior, Half Hollow Hills High School East, Dix Hills, New York, T: Chrysi Notskas
- MA030 Knots, Links and Applications to DNA**
Shirley E. Cho, 17, Senior, Paul D. Schreiber Senior High School, Port Washington, New York, T: Elaine Labrocca
- MA031 On Approximability by Embedding of Cycles in the Plane**
Mikhail B. Skopenkov, 17, Junior, Kolmogorov College, Moscow, Russia, T: Alexander A. Rusakov
- MA032 Largest Graphs of Diameter 2 and Fixed Euler Characteristics**
Serge A. Tishchenko, 15, Sophomore, Vtoraiia Shkola, Moscow, Russia, T: Anna V. Oshmian
- MA033 Unified Approach to Cycle Lengths in the Fibonacci Mod P Sequence: Two-Year Study**
Cory Scott Mingelgreen, 17, Senior, Lawrence High School, Cedarhurst, New York, T: Eugene Vetter
- MA034 Golden Ratio (ϕ) in Facial Portraits Throughout the Last 1,000 Years**
Leslie Erin Cohen, 15, Sophomore, Great Neck South High School, Great Neck, New York, T: Carol Hersh
- MA035 Integer Sequences that Behave Like the Fibonacci Sequence**
Richard B. Gottesman, 16, Sophomore, Roslyn High School, Roslyn Heights, New York, T: Glen Sherwood
- MA036 Synthetic Division for Divisors That Are Polynomials of Degree Greater Than One**
Maria de Lourdes Ramos, 17, Junior, Carmen Belen Veiga High School, Juana Diaz, Puerto Rico, T: Maria de Lourdes Plaza Boscana
- MA037 Quadratic Equation Solutions by Means of Iterations**
Guillermo Jose Colon Villafane, 15, Sophomore, C R O E M, Mayaguez, Puerto Rico, T: Edwin Benvenuti
- MA038 Results in Graph Theory—Venn Diagrams, Hamilton Cycles and Ramsey Theory**
Jonah D. Blasiak, 17, Senior, Thomas Sprigg Wootton High School, Rockville, Maryland, T: Wilson Bascom
- MA039 Fractal Motif Attributes—Model of Card Shuffling and the Resulting Hausdorff Dimension**
Molly S. Peeples, 15, Junior, Spring Valley High School, Columbia, South Carolina, T: Angela Quick
- MA040 Equation of the Golden Spiral**
Sandhya B. Murti, 15, Junior, Communication and Media Arts High School, Detroit, Michigan, T: Ermelda Polk
- MA041 Dynamics of CD4 T Cells in HIV-1 Patients Under HAART—Implications in Immune System Restoration**
Elaine Pei-San Gee, 18, Senior, Frederick High School, Frederick, Maryland, T: Shelley Smith
- MA042 Elliptical Tangents**
Vasily Vladimirovich Starodubtsev, 17, Senior, Clovis High School, Clovis, California, T: Diana Herrington
- MA043 6-Venn Diagram $C=\{C_1, \dots, C_n\}$, Formed by Rectangular Curves**
Jose Rafael Pizarro, 16, Junior, University Gardens High School, San Juan, Puerto Rico, T: Loyda Rodriguez-Quinones
- MA044 Corrective Codes of Errors**
Ricardo Ve'lez, 16, Junior, Rexville High School, Bayamon, Puerto Rico, T: Elena B. Siberun
- MA045 Sound of Chaos**
Clark Dalton McKeon, 15, Freshman, Welch High School, Welch, Oklahoma, T: Sally Fenska
- MA046 Using Fractals to Model Coastlines and Measure Geographical Irregularities**
Ariel Alberto Quinones, 16, Sophomore, Colegio San Ignacio de Loyola, Rio Piedras, Puerto Rico, T: Wilma Rivera
- MA047 Surreal Dimensions**
Alexandra Ovetsky, 16, Sophomore, Central High School, Philadelphia, Pennsylvania, T: Dennis Erlick
- MA048 Pascal in 3-D**
David Lance Baty, 17, Senior, West Plains High School, West Plains, Missouri, T: Kenneth Gillam
- MA049 Diophantine Solutions to the Pythagorean Theorem in all Dimensions**
Jennifer R. Walk, 18, Senior, Suncoast High Community School, Riviera Beach, Florida
- MA050 Order and Chaos in a Dripping Water Faucet**
Aditya P. Khargonekar, 15, Sophomore, Ann Arbor-Huron High School, Ann Arbor, Michigan, T: Dee Drake
- MA051 Extension of a Theorem of Kiming and Olsson for $p(n)$: Two-Year Study**
Jayce R. Getz, 18, Senior, Big Sky High School, Missoula, Montana, T: James Harkins
- MA052 Solution of the Problem of Walter Janossy**
Danilyar Z. Kamenov, 17, Senior, Lyceum School N20, Taldykorgan, Almatinskaya oblast, Kazakhstan, T: Filko S. Anatolyevna
- MA053 Fractal Geometry—New Dimensions**
Aaron H. Finch, 15, Sophomore, Good Hope School, St Croix, Virgin Islands, T: Charles Renn
- MA301T Rocket Mathematics**
Albert Adam Van Etten, 16, Sophomore
Vincent Michael Pugliese, 15, Sophomore
Steilacoom Senior High School, Steilacoom, Washington
T: Robert Mize
- MA302T Investigations Into Pascal's Triangle**
Peter Taylor, 15, Sophomore
Shane Michael Browne, 15, Freshman
Saint Kilians Community School, Co. Wicklow, Ireland
T: Patrick Quill
- MA303T Method for Raising Real Numbers to a Rational Power and its Computer Implementation**
Siarhei Markouski, 15, Sophomore
Ilya Malakhovsky, 15, Sophomore
School N41, Minsk, Belarus
T: Tatiana Gourianova
- MA304T Ulam Numbers—Enigma for Our Times**
Elvin Miguel Concepcion, 17, Senior
Milton Ricardo Miranda, 16, Junior
Eladio Tirado Lopez, Aguada, Puerto Rico
T: Hilda Rosa
- MA305T Mathematics of Art**
Yousuf Z. Abbasi, 18, Senior
Soroush H. Morshedi, 17, Senior
Payam Rashidi, 18, Senior
Little Rock Hall High School, Little Rock, Arkansas
T: Dennis Brant
- MA306T Stochastic Models of HIV/T Cell Analyzing Chemotherapy**
Joakim Kristofer Vinberg, 18, Senior
Beeneet Kothari, 17, Senior
Manhasset Junior-Senior High School, Manhasset, New York
T: Peter Guastella
Half Hollow Hills High School West, Dix Hills, New York
T: Alan Blayne
- MA307T Recycling Algorithm**
Jordan Issac Rubinstein, 17, Junior
Justin Georgekutty, 17, Junior
Roslyn High School, Roslyn Heights, New York
T: Farrel Powsner
- MA308T Perfect Triangles**
Marta Gonzalez, 17, Junior
Karla Michelle Palermo, 16, Junior
Francisco Zayas Santana High School, Villalba, Puerto Rico
T: Pedro J. Berrias

- MA309T New Technique to Determine the General Term of a Sequence Based on Finite Ratios**
Joan Vazquez, 17, Senior
Alejandro Quinones, 18, Senior
Aurea E. Quiles High School, Guanica, Puerto Rico
T: Henry Hicks
- MA310T Cellular Automata—Cyber Creepy Crawlies**
Ian Levi Nelson, 18, Senior
Dagny Lauren Looper, 18, Senior
Arkansas School of Mathematics & Sciences, Hot Springs, Arkansas
T: Bruce E. Turkal
- MA311T Fun with Binary Numbers**
Janet Soltero-Lugo, 17, Senior
Angel Jose Olivera-Toro, 17, Senior
University Gardens High School, San Juan, Puerto Rico
T: Loyda Rodriguez

- ME013 Cancer Eye—Probing the Squamous-Cell Carcinoma/Matrix Metalloproteinase Connection**
Amanda Catherine Baker, 18, Senior, Woodlin High School, Woodrow, Colorado, T: Nancy Gettman
- ME014 Synergistic Effects of Endostatin and Aspirin on Angiogenesis in *Gallus domesticus* Embryos**
Draik Bryant Hecksel, 16, Junior, East Noble High School, Kendallville, Indiana, T: Harold Sollenberger
- ME015 Ultrasound-Mediated Transdermal Delivery of Heparin: Two-Year Study**
Yun-Ling Wong, 17, Senior, Lincoln Jr-Sr High School, Lincoln, Rhode Island, T: R. Andrew Viruleg
- ME016 Effects of Temperature on DEHP**
Liza Anne Ingvalson, 16, Junior, Lake Crystal Wellcome Memorial High School, Lake Crystal, Minnesota,
T: Bart Johnson
- ME017 Metabolic and Glutamate Interaction in Huntington's Disease: Two-Year Study**
Osmond C. Wu, 18, Senior, Upper Arlington High School, Upper Arlington, Ohio, T: Peggy Sheets
- ME018 Production of HIV-1 Envelope Expression Plasmids From Pediatric Patient Peripherals Blood Mononuclear Cells (PBMC) Before and During HAART**
Brandy Lynn May, 17, Junior, University High School, Orlando, Florida, T: Linda Brennan
- ME019 O₂ Saturation and Peak Flow in Patients With and Without Dyspnea: Two-Year Study**
Mansi Derang Patel, 16, Junior, Martin County High School, Stuart, Florida, T: David Hall
- ME021 Characterization of the Immunoregulatory Effects of TGF-Beta**
Nancy Huynh, 17, Senior, Alhambra High School, Alhambra, California, T: Duane Nichols
- ME022 Hyperglycemia Induces Oxidative Stress and Caspase Activity**
Lindsay Dobrzynski Breedlove, 18, Senior, Hathaway Brown School, Shaker Heights, Ohio, T: Patricia Hunt
- ME023 Fresh Garlic vs. its Commercial Preparations as an Antibacterial, Antifungal and Antiviral Agent**
Christopher Clair Cottingham, 17, Junior, Victory Christian School, Tulsa, Oklahoma, T: Mark Rodriguez
- ME024 Evidence for Emmetropization by Trial and Error**
Derek J. Jun, 17, Junior, Academy for the Advancement of Science and Technology, Hackensack, New Jersey,
T: Ronald Schreck
- ME025 eMessenger—Search for Better Device to Accomplish the Task of Compression Therapy**
Jiaxin Tran, 15, Sophomore, Bergen County Voc High School, Hackensack, New Jersey, T: Bahadir Karuv
- ME026 Effects of a Flavonoid on Bad Cholesterol**
Jared Sean G. Cadiz, 17, Senior, James Campbell High School, Ewa Beach, Hawaii, T: Fred E. Nakaguma
- ME027 One Step Closer to the Cure—Identification of Specific Protein Interactions Mediated by Myeloid Zinc Finger 1b Amino Acids 1-257**
Bobby Mohan Agrawal, 16, Senior, Nicolet High School, Glendale, Wisconsin, T: Ronald LeMay
- ME028 Do Nitrate and Sulfite Preservatives Affect Development?**
Raul Ortiz, 17, Junior, Calumet High School, Gary, Indiana, T: Kathryn Hedges
- ME029 Effect of Growth Factors on Human Cancer Cell Division**
Megan Clarke Roberts, 15, Freshman, Carlisle Area High School, Carlisle, Pennsylvania, T: Ralma Fry
- ME030 Quantitative Approach to Reduce Malondialdehyde With Ascorbic Acid**
Keri Jean Propst, 16, Junior, Merino High School, Merino, Colorado, T: Penny Propst
- ME031 Effects of MW on CPA-Induced Toxicity: Phase II**
Thanh Thien Ha, 19, Senior, York Catholic High School, York, Pennsylvania, T: Anita Gordon
- ME032 Who's Your Main Squeeze? Effectiveness of Different Toothpastes on Prohibiting Plaque Growth: Two-Year Study**
Sarah Melissa Zoller, 15, Sophomore, Academic Magnet High School, Charleston, South Carolina, T: Murray Eicher

MEDICINE AND HEALTH

GRAND AWARDS PRESENTED BY:
MERCK RESEARCH LABORATORIES

- ME001 Age-Related Macular Degeneration—Interpolative Diagnostic Modeling of Standard Diagnostic Methodologies and Effectiveness of Photodynamic Therapy**
Michael Robert Wessel, 18, Senior, Ely High School, Pompano Beach, Florida, T: Doris Walden
- ME002 Forensic Osteology—Accuracy of Long Bone vs. Cranium Measurements in Stature Determination**
Suzanne M. Cramer, 18, Senior, F.W. Springstead High School, Spring Hill, Florida, T: Craig Gates
- ME003 Phacoemulsification—Post-Operative Study**
Sara Leigh Hooven, 17, Senior, F.W. Springstead High School, Spring Hill, Florida, T: Craig Gates
- ME004 Effect of Docosahexaenoic on the Development of the Retina**
Megan E. Muroski, 15, Freshman, Gateway High School, Kissimmee, Florida, T: Frank Valenza
- ME005 Anti-Carcinogenic Abilities of Resveratrol: Two-Year Study**
Joshua David Weissman, 17, Senior, Marjory Stoneman Douglas High School, Parkland, Florida, T: Jo Ann Combs
- ME006 Immune System Response to Viral Infections**
Monica Rose Magnan, 15, Freshman, Rickards High School, Tallahassee, Florida, T: Rick Davies
- ME007 Growth-Associated Protein (GAP-43) in the Regeneration of Damaged Neurons**
Tyler Louis Davidson, 16, Junior, Harrison High School, West Lafayette, Indiana, T: Chris Sahley
- ME008 Government Misleads Both Consumers and Farmers**
Corita Marie Steinkruger, 18, Senior, Hildreth Public High School, Hildreth, Nebraska, T: Randell Lienamman
- ME009 Effect of Platelet-Tumor Cell Interactions Through CD40 and its Ligand on Tumor Cell Procoagulant Activity**
Kimberly Erin Olvey, 18, Senior, Lake Brantley High School, Altamonte Springs, Florida, T: Susan N. Behel
- ME010 In vivo Transfection of Ischemic Rat Skin Flaps With Vascular Endothelial Growth Factor**
Albert Yung-Hsiang Huang, 18, Senior, Spruce Creek High School, Port Orange, Florida, T: Mary Aumiller
- ME011 Effects of Vitamin E on Infection of *E. coli* by T4 Bacteriophage**
Kristin Michelle Hoff, 15, Freshman, Heath Junior School, Greeley, Colorado, T: Jerry Bauer
- ME012 Combating Resistance to Penicillin in *Staphylococcus epidermis***
Benjamin Irving Staub, 16, Sophomore, Greeley West Senior High School, Greeley, Colorado, T: Cynthia Miller- Hughes

- ME033 Absorbance of Aluminum in the Brain of *Gallus domesticus* and It's Effect on Neuron Development in Cerebral Hemispheres**
 Allison Ann Gattis, 17, Junior, Farmington High School, Farmington, New Mexico, T: Ann Gattis
- ME034 P53 and Ki-67: Prognostic Markers for Ovarian Serous Tumors and Their Role in Ovarian Cancers**
 Alexander Chow Mittal, 15, Freshman, Greenwich High School Sheldon House, Greenwich, Connecticut, T: Ray Hamilton
- ME035 Transgenic Construct for the Cardiac-Specific Expression of MCAR—Testing *in vivo* Heart Gene Therapy**
 Yan Xuan, 17, Junior, Dupont Manual Magnet High School, Louisville, Kentucky, T: Glenn Zwanzig
- ME036 Effectiveness of Antimicrobial Dentifrices and Mouth Rinses on Inhibition of Oral Microflora**
 Samantha Megan Feingold, 14, Freshman, Dr. Michael M. Krop Senior High School, Miami, Florida, T: David Buncher
- ME037 Possible Anti-Viral Properties of Black Tea, Beta-Carotene in Suppressing NPV**
 Miranda Davis, 16, Sophomore, Yazoo City High School, Yazoo City, Mississippi, T: Debra Raddin
- ME038 Pathobiology of Hemodialysis Vascular Access Stenosis**
 Adrian Paul Abreo, 17, Senior, Caddo Parish Magnet High School, Shreveport, Louisiana, T: Sheryl A. Thomas
- ME039 *E. coli* Infections by Blocking Potassium Efflux Channels to Prevent the Acid Tolerant Response**
 Blake Aston Wallach, 17, Senior, Tottenville High School, Staten Island, New York, T: Peter Takvorian
- ME040 Identification of Bioactive Compounds: Phase II**
 Jessica Elizabeth Ann Kaae, 15, Sophomore, Charles M Russell High School, Great Falls, Montana, T: Josy McLean
- ME041 Reducing Lethal UV Radiation Damage in Fruit Flies Using Antioxidants**
 Jerri Lanette Ahrens, 18, Senior, North Toole County High School, Sunburst, Montana, T: Lawrence D. Fauque
- ME042 *Coffea arabica* as Antihistamine**
 Josue E. Castellanos-Otero, 16, Senior, Centro Residencial de Oportunidades Educativas, Mayaguez, Puerto Rico, T: Brenda M. Cabrera
- ME043 Genetic Regulation of the Balance Between Life and Death in Cancer Cells**
 Claire E. Broton, 15, Freshman, Liverpool High School, Liverpool, New York, T: Jeff Peneston
- ME045 Inflammatory Cytokines and Their Role in Breast Pain**
 Jillian Lee Werbeck, 16, Junior, Liverpool High School, Liverpool, New York, T: Jeff Peneston
- ME046 Why Do South Coast Spas Have Curative Effects on the Body?**
 Raymond Anthony McFarlane, 17, Senior, Knox Community College, Clarendon, Jamaica, T: Errol C. Miller
- ME047 Effectiveness of *Taraxacum officinale* as an Antibiotic**
 Crystal Gail Toupin, 18, Senior, Roy High School, Roy, Utah, T: Marie Wilcox
- ME048 Analysis of Drugs That Impact Retrovirus-Like Elements**
 Lisa Michelle McGinnis, 17, Junior, Oakton High School, Vienna, Virginia, T: Steve Scholla
- ME049 Effect of Echinacea on Bacterial Resistance**
 Stephanie Diane Feese, 17, Junior, Marshall High School, Marshall, Arkansas, T: Kenda Dearing
- ME050 Investigation on the Nutritional Status of Chinese Middle School Students by BIA and Dietary Inquiry**
 Yuhe Diao, 17, Junior, Beijing Jingshan School, Beijing, China, T: Huilan Li
- ME051 Young Women With *von Willebrand* Disease Associated With Dysmenorrhea**
 Heather Fawn Forrest, 18, Senior, Cobleskill-Richmondville Central High School, Warnerville, New York, T: Mary Colvard
- ME052 Atomic Force Microscopy Study of Membrane Protein CFTR**
 Kate Elizabeth Pedatella, 18, Senior, Paul D. Schreiber Senior High School, Port Washington, New York, T: Phyllis Serfaty
- ME053 Effects of Minoxidil on *Drosophila melanogaster***
 Courtney Michelle Rowe, 17, Junior, Stamps High School, Stamps, Arkansas, T: Kaye Minter
- ME054 P53 as a Diagnostic Tool for the Detection of Cancer and its Role in Tumor Progression: Two-Year Study**
 Rander Giovanni Hakeem Adams, 17, Junior, Murrah High School, Jackson, Mississippi, T: Cindy Cook
- ME055 Protective Effects of Vasoactive Intestinal Peptide on Apoptosis**
 Casey Allison Seideman, 17, Senior, Northport High School, Northport, New York, T: Patricia Bossert
- ME056 Use of the *Allium sativum* in the Preparation of the Vaginal Suppositories for the Treatment Against the *Candida albicans* Fungus**
 Daianna M. Zambrana Adams, 16, Junior, Liceo Ponceño, Ponce, Puerto Rico, T: Aida B. Montijo Rodriguez
- ME057 How Are Diabetes and High Cholesterol Related to Cardiovascular Sickness?**
 Yisel M. Torres, 16, Sophomore, Superior Francisco Morales, Naranjito, Puerto Rico, T: Aurea Berrios Saez
- ME058 Anticancer Floritoxin in *Aleurites molucana*: Two-Year Study**
 Shanelle Meleaka Sanborn, 17, Senior, Kamehameha Secondary School, Honolulu, Hawaii, T: Lawrence Mordan
- ME059 Succulent Solution to a Burning Problem: Phase III**
 Kimberly Jane Buehring, 16, Junior, Banquete High School, Banquete, Texas, T: Jane B. Buehring
- ME060 Comparative Efficacy of Two Catheter Flushes**
 Nilay M. Gandhi, 18, Senior, White Station High School, Memphis, Tennessee, T: Rita Moore
- ME061 Melatonin on Inhibiting LPS-Induced NOS in Cortical Astrocytes: Two-Year Study**
 George Keen Fai Tong, 18, Senior, Lincoln Park High School, Chicago, Illinois, T: Patricia A. Riley
- ME062 mtCLIC—p53 and TNF- α Regulated Mitochondrial Chloride Channel Involved in Apoptosis**
 Joshua Michael Levy, 18, Senior, Quince Orchard High School, Gaithersburg, Maryland, T: Andrew Pogan
- ME063 Antioxidant Efficacy of *Ginkgo biloba* Compared With Vitamin C, Vitamin E, Vitamin A and β -Carotene Using the Ferric Reducing Ability Plasma (FRAP) Assay *in vitro***
 Daniel Saddawi-Konefka, 17, Senior, John Adams High School, South Bend, Indiana, T: Nevin Longenecker
- ME064 Effects of Vitamin A and Vitamin D on MCF-7 Breast Cancer Cells**
 Kristen L. Pyszka, 17, Junior, Marian High School, Mishawaka, Indiana, T: Ken Andrzejewski
- ME065 Progressive Loss of Germ Cells Through Apoptosis in XXY Male Mice**
 Michael N.F. Im, 17, Junior, California Academy of Math & Science, Carson, California, T: Thomas Jett
- ME066 Microscopic Analysis of the Effects of Aspartame on *Euglena gracilis***
 Kevin Michael Lankheit, 18, Senior, Notre Dame High School, Cape Girardeau, Missouri, T: Brad Wittenborn
- ME067 Role of Fas and Fas Ligand in the Killing of Tumor Cells by Anticancer Drugs—Novel Implications in Therapy: Phase VI**
 Nisha Nagarkatti, 18, Senior, Blacksburg High School, Blacksburg, Virginia, T: Barbara Davis
- ME068 How Does Secondhand Smoke Affect Mice? Two-Year Study**
 Jeanette Monique Bentley, 17, Junior, Victoria High School, Victoria, Texas, T: Edith Barnhart
- ME069 Hala and HELA—Growth Inhibitory Effects of *Pandanus odoratissimus* on Human Cervical Cancer Cells**
 Kiani Arkus, 14, Freshman, Kamehameha Secondary School, Honolulu, Hawaii, T: Lawrence J. Mordan
- ME070 Function of Lymphocyte Uropod**
 Bonnie M. Gray, 17, Senior, Henry Ford High School, Detroit, Michigan, T: Eva Hamme
- ME071 Tooth Decay Caused by Common Beverages**
 Brandon Michael Schmandt, 16, Sophomore, Detroit Catholic Central High School, Redford, Michigan, T: Alan Barker
- ME072 Differential Gene Expression Induced by *Yersinia pestis* in Human Monocytes**
 Shankar K. Sridhara, 17, Senior, Centennial High School, Ellicott City, Maryland, T: Michelle Bagley

- ME073** **BST-Increased Milk for the New Millennium: Two-Year Study**
Jay Vincent Odland, 17, Junior, Sisseton High School, Sisseton, South Dakota, T: Frank Konda
- ME074** **Natural Mouthwash—New Alternative to Preserve Oral Health**
Daniel A. Torres, 16, Sophomore, Colegio Marista, Guaynabo, Puerto Rico, T: Isabel Perez
- ME075** **Approach to Puerto Rican Ethnomedicine—Spermicidal and Contraceptive Properties of *Eryngium foetidum* Organic Extract**
William Vazquez Claudio, 16, Junior, Casiano Cepeda High School, Palmer, Puerto Rico, T: Angel L. Diaz Rosario
- ME076** **Effects of Fatigue on Cardiovascular Fitness**
Nicola Ann Revely, 19, Senior, Durham 6th Form Centre, Durham, England, United Kingdom, T: Anthony Smith
- ME077** **Allergenicity of the Predator Dust Mite *Cheyletus tenuipilis***
Michael John Alan Morris, 18, Senior, Killara High School, Sydney, NSW, Australia, T: Ann Dixon
- ME078** **Hot Pepper! Possible Therapy for Peptic Ulcer Disease?**
Seema Aafreen Azher, 14, Freshman, Carman-Ainsworth High School, Flint, Michigan, T: Nathan T. Elder
- ME079** **Antiseptic Ability of Herbal Remedies: Two-Year Study**
Kimberly Thomas Yazzie, 16, Sophomore, Wingate High School, Fort Wingate, New Mexico, T: Michelle Eustice
- ME080** **Testing the Susceptibility of K-562 Cells to Natural Killer Cells**
Natalie Lynn Hammer, 18, Senior, Jefferson County High School, Dandridge, Tennessee, T: Jan Coley
- ME082** **Discovery of Angiogenesis Inhibition by Garlic**
Ahmed S. Mousa, 16, Sophomore, Avon Grove High School, West Grove, Pennsylvania, T: Robin Fought
- ME083** **Clinical Applications of Uric Acid on CNS Pathology: Two-Year Study**
Sonia Mehta, 18, Senior, Bensalem High School, Bensalem, Pennsylvania, T: Kate Gallagher
- ME084** **Effects of Solu-Medrol-Copaxone on Multiple Sclerosis**
Mary Roxey Kingsbury, 16, Sophomore, Grafton High School, Grafton, North Dakota, T: Cheryl Kingsbury
- ME085** ***Hirudo medicinalis*: Phase II**
Beth Ann Tietz, 15, Freshman, Elgin High School, Elgin, North Dakota, T: Pam K. Hintz
- ME086** **Biology Plus Engineering Equals Hope for Future Cardiotransplant**
Martin Ignacio Mindeguia, 18, Senior, Complejo Educativo Escuela Normal Olegario V. Andrade, Gualeguaychu, Entre Rios, Argentina, T: Stella Lopez Squeff
- ME087** **Effects of Fiber on Absorption of Various Carbohydrates: Phase II**
Kara Alette Contreary, 17, Junior, Benjamin Franklin High School, New Orleans, Louisiana, T: Mary Mysing-Gubala
- ME088** **Thyroid Health Is Just a Salt Lick Away—Iodine vs. Soy Isoflavones in Maintaining Normal Thyroid Function: Two-Year Study**
Candice Sara Twilley, 17, Junior, Cardinal O'Hara High School, Springfield, Pennsylvania, T: Katherine Lansing
- ME089** **Analysis of Acquired Apoptotic Resistance in NS-1 Myeloma via Prolonged Dexamethasone Exposure: Five-Year Study**
Shayna Anesa Bailey, 17, Senior, Lincoln Park Academy, Fort Pierce, Florida, T: Judith Megaw
- ME090** **Spinal Curvature**
Maria Del Rosario Kozak, 17, Senior, Instituto Padre Juan Muzio, Trelew, Chubut, Argentina, T: Adrian O. Baraibar
- ME091** **Dopamine-3 Receptor Agonist as a Novel Antiglaucoma Agent**
Eugenia Chu, 16, Junior, Evans High School, Evans, Georgia, T: Claudia Mahaffie
- ME092** **Brand Name Product vs. Generic Product**
Niesha Elizabeth Mahepath, 16, Junior, Saint Croix Seventh Adventist, St Croix, Virgin Islands, T: Paul Johnson
- ME093** **What Effects Do NaCl and MgSo₄ Have on Bovine Serum Glucose as a Risk Factor to Type II Diabetes?**
Zipporah-Lakshmi Muna Inniss, 17, Senior, Saint Joseph High School, Saint Croix, Virgin Islands, T: James Petrait
- ME094** **Creatine Monohydrate's Ability to Induce Chromosome Aberrations in Chinese Hamster Ovary (CHO) Cells**
Joshua Allen Swanson, 18, Senior, Maddock High School, Maddock, North Dakota, T: David Nowatzki
- ME301T** **Aromatherapy as a Stimulant for Concentration When Answering a Test**
Josiris D. Rodriguez-Perez, 16, Junior
Karina Jove-Jimenez, 16, Junior
Hogar Colegio La Milagrosa, Arecibo, Puerto Rico
T: Yadira Gonzalez Colon
- ME302T** **Skeletal Muscle Cells—Competent Model Systems for Neurotrophic Research: Two-Year Study**
Seetharam Chowdary Chadalavada, 18, Senior
Melinda Mae Sloma, 17, Senior
Battle Creek Area Math & Science Center, Battle Creek, Michigan
T: John M. Spitsbergen
- ME303T** **What Do You Really Pass With Your Pass?**
Jody Anne Garry, 18, Senior
Stacy Marie Vilhauer, 18, Senior
Mitchell High School, Mitchell, South Dakota
T: Judy Vondruska
- ME304T** **Regulation of Bone Marrow Cells by Activin A and Inhibin**
Margaret Diane Depper, 18, Senior
Laci Anne Kazanovicz, 18, Senior
Arkansas School of Mathematics & Sciences, Hot Springs, Arkansas
T: Shane Willbanks
- ME305T** **Caution—Objects May Be Closer Than They Appear**
Devin Randall Harper, 15, Freshman
Tyler Jordan Morehart, 15, Freshman
Darby Junior High School, Fort Smith, Arkansas
T: Shane Mullens
- ME306T** **Do Antibacterial Products Create More Resistant Strains of *E. coli*?**
Christine Marie Burns, 18, Senior
Analiese McIntyre Kornely, 17, Senior
West Potomac High School, Alexandria, Virginia
T: Susan Piskar
- ME307T** **How Safe is Your Salsa? Adaptive Acidification Tolerance in Enteric Bacteria and its Prevention: Phase II**
Nicole Marie Merkord, 17, Senior
Jessica Lyn VanAntwerp, 17, Senior
John B. Connally High School, Austin, Texas
T: Patricia Merkord
- ME308T** **Bacterial Risk Factor in the Development of Infant Caries**
Lydia del Carmen Ocasio, 16, Sophomore
Isabel Cristina Acevedo, 15, Sophomore
JoAnn Marie Cabrera, 15, Sophomore
Colegio Marista, Guaynabo, Puerto Rico
T: Isabel Perez
- ME309T** **To Buff or Not to Buff—Does *Lactobacillus acidophilus* Maintain pH?**
Melynda Dianne Scriven, 17, Senior
Catherine C. Dozier, 18, Senior
Katrina Lynette Robinson, 17, Senior
Gwynn Park High School, Brandywine, Maryland
T: Linda Campbell
- ME310T** **Ultrasound Today—Accuracy of Real-Time Ultrasound Machine**
Misty Dawn Martin, 17, Junior
Ashley Brooke McQueen, 18, Senior
Mason High School, Mason, Texas
T: Bonnie Schmidt
- ME311T** **How Does the Medicine Help You?**
Margo Marie Oliver, 17, Senior
Margaret Diantha Ain, 18, Senior
Las Vegas Academy High School, Las Vegas, Nevada
T: Edward A. Baciak

- ME312T Do the Components of a Country's Diet Affect its Rate of Breast Cancer?**
Allyson T. Ponssock, 17, Junior
Rachel Lynn Troyer, 16, Junior
Lauren Elizabeth McQuiston, 17, Junior
Saint Joseph's Academy, Baton Rouge, Louisiana
T: Susan Messina
- ME313T Cornsilk as an Alternative Medicine for Curing Diabetes Mellitus**
Ahmad Syaifuddin, 19, Senior
Melissa Gracia, 16, Junior
Bastian Wiandany, 16, Junior
SMU 1 Kudus J1., Kudus, Kudas Jawa Tengah, Indonesia
- ME314T Sir, Sir...Can You Hear Me?**
Patricio Alejandro Breczko, 18, Senior
Luis Fernando Viceute, 18, Senior
Franco Martin Oroquieta, 17, Senior
Instituto Padre Juan Muzio, Trelew, Chubut, Argentina
T: Adrian O. Baraibar
- ME315T Ratstail Plantain as a Natural Buffer: Phase III**
Angelica M Guzman, 17, Senior
Jaleska Aponte, 17, Senior
Luis Munoz Marin High School, Barranquitas, Puerto Rico

- MI012 Searching for Antimicrobial Substances Produced by Microorganisms Isolated From Natural Food Sources**
Jessica A. Burtness, 16, Sophomore, Coon Rapids Senior High School, Coon Rapids, Minnesota, T: Warren Rumsch
- MI013 Triazine Degradation Potential in Soils**
A. Benjamin Suri, 17, Junior, Saint Paul, Minnesota, T: Arvind Suri
- MI014 Adherence of *E. coli* O157:H7 to Alfalfa Sprouts: Two-Year Study**
Jennica Rae Slattery, 16, Junior, Minnehaha Academy, Minneapolis, Minnesota, T: Barb Olson
- MI015 Rainbow of Serratia—Study in Metabolic Pathways and UV Light**
Laura Margaret Wacker, 14, Freshman, William J. Palmer High School, Colorado Springs, Colorado
- MI016 Survival of Bacteria on Waxed vs. Unwaxed Tomatoes?**
Hannah Mary Kaufman, 15, Freshman, Newberry Junior Senior High School, Newberry, Florida, T: Cindy Holland
- MI017 Grappling With Pathogens**
Thomas Marshall Beachkofsky, 18, Senior, Northview High School, Brazil, Indiana, T: Rachel L. Sparks
- MI018 One-Two Punch to the Resistant Bunch—Synergistically Combating Methicillin and Ampicillin Resistance in MRSA**
Ibraheem Magsood Mohammed, 14, Freshman, Niceville Senior High School, Niceville, Florida, T: Shawnea D. Tallman
- MI019 Phylogenetic Characteristics of Conjugal Plasmid Transfer in *E. coli*: Two-Year Study**
Ross Bradley Reule, 17, Junior, Saint Joseph Central High School, Saint Joseph, Missouri, T: Dennis D. Reule
- MI020 Antibacterial Effects of Seeds Traditionally Used by the Hohokam and Tohono O'odham**
Beverly Lynn Lotts, 17, Junior, Buena High School, Sierra Vista, Arizona, T: Virginia Bealer
- MI021 Tropical-Flavored Fungii**
Tyler Lee Jorgenson, 14, Freshman, Buena High School, Sierra Vista, Arizona, T: Virginia Bealer
- MI022 Aluminum Enhancement by Recently Discovered Thermoacidophile: Two-Year Study**
Terri Katherine Myers, 17, Junior, Northwestern High School, Kokomo, Indiana, T: Patricia Zeck
- MI023 Single-Celled Spelunkers....Microbes of Glenwood Caverns**
Michelle Rae Lyons, 17, Senior, Rifle High School, Rifle, Colorado, T: Anthony Rossilli
- MI024 Anti-EPCR Antibody Epitope Mapping**
Crystal Ann Lohmann, 18, Senior, Alva Senior High School, Alva, Oklahoma, T: Julie Angle
- MI025 Sanitizing a Child's Medicine Dispensing Device**
Mobin Ahmed, 16, Junior, William Dickinson High School, Jersey City, New Jersey, T: Michael Corcoran
- MI026 Inhibition of Growth of Bacteria Found in Urinary Tract Infections by Green Tea Catechin**
Leah Michelle Eddy, 18, Senior, Chillicothe R-Ii Senior High School, Chillicothe, Missouri, T: Greg Thurmon
- MI027 Essential Oils Effect On *Staphylococcus aureus*: Three-Year Study**
Alison Maria Bettles, 18, Senior, Elko High School, Elko, Nevada, T: Teresa Noland
- MI028 Bacteria Growth in Mascara**
Lauren Therese Wagner, 16, Sophomore, Lehman Catholic High School, Sidney, Ohio, T: Denise Stauffer
- MI029 Evidence for a Lipoprotein Scavenger Receptor in African Trypanosome**
Emmanuelle Nathalie St. Jean, 17, Senior, Midwood High School at Brooklyn College, Brooklyn, New York, T: Jay Touger
- MI030 What Is the Effect of Added Nutrients and Microorganisms on the Tripartite Symbiosis of Legumes Grown in Degraded Soil?**
Kirsten Ann Grimm, 15, Sophomore, Prescott High School, Prescott, Arizona
- MI031 Transfer of Antibiotic Resistance in *E. coli***
Nadia Shakoor, 17, Junior, Glenwood High School, Chatham, Illinois, T: Rita Singer

MICROBIOLOGY

GRAND AWARDS PRESENTED BY: INTEL

- MI001 Biological Control of Kudzu: Three-Year Study**
Jeremy Daniel Farris, 18, Senior, Houston County High School, Warner Robins, Georgia, T: Margaret Molyson
- MI002 Frequency of the *mf2* Gene in *Streptococcus pyogenes* and the Correlation Between *mf2* and *speC* in the Genome**
Melissa Sarah Cain, 17, Senior, Classen School of Advanced Studies, Oklahoma City, Oklahoma, T: Shelley Hunter
- MI003 Garlic as an Antibiotic**
Laura Ann Webb, 18, Senior, John Handley High School, Winchester, Virginia, T: Jerry Putt
- MI004 Isolation and Identification of Multiple Drug Resistance as Mediated by Outer Membrane Proteins of *Burkholderia cepacia***
Alyssa Miriam Zelkowitz, 17, Junior, Lake Brantley High School, Altamonte Springs, Florida, T: Susan N. Behel
- MI005 Searching for Indirect Evidence of Microbes in the S.E. Powder River Basin Presently Producing Methane From Coal Degradation**
Tiffany D. Clark, 18, Senior, Campbell County Senior High School, Gillette, Wyoming, T: Brent Daly
- MI006 Comparative Study of the Existence of Microorganisms in Potable Water in the Towns of Vega Baja, Manatí, Ciales, Barceloneta and Arecibo: Phase III**
Amneris Rodriguez-Nazario, 17, Senior, Fernando College, Manati, Puerto Rico, T: Victor M. Román Centeno
- MI007 Bacteriophage T4 Resistant Bacteria: Two-Year Study**
Errin Lynn Patterson, 17, Senior, Warren Alvarado Oslo High School, Warren, Minnesota
- MI008 Should Your Cat Come With a Bio-Hazard Warning?**
William Zachary Alexander, 17, Junior, Grants High School, Grants, New Mexico, T: Robert Schafer
- MI009 Mitotic Inhibition by the Sialoglycopeptide, CeReS-18**
Vance H. Lamb, 17, Junior, Manhattan High School, Manhattan, Kansas, T: Heideh Fattaey
- MI010 Rules Governing the Occurrence of Mutations During Viral Replication**
Mark Kaganovich, 15, Sophomore, Bloomington High School North, Bloomington, Indiana, T: Jean Schick
- MI011 Cloning of the PHB Pathway: Two-Year Study**
Ellen Miriam Stormer, 18, Senior, Benjamin Logan High School, Bellefontaine, Ohio, T: Spencer E. Reames

- MI032 I Scream; You Scream; We All Scream for... BACTERIA?! Phase IV**
Pamela Sue Smith, 14, Freshman, Excellence in Education Academy, High Ridge, Missouri, T: Betty Smith
- MI033 Bacterial Transformation in *Serratia marcescens***
Michael Aaron King, 16, Sophomore, Pleasant Grove High School, Texarkana, Texas, T: Monica Smith
- MI034 Fungicidal Activity of AITC Released by Macerated Indian Mustard on Mycelia of *Sclerotium rolfsii***
Heather Nicole Hannahan, 15, Sophomore, Clarkrange High School, Clarkrange, Tennessee, T: Dayon Taylor
- MI035 New Source for Antibiotics—*Halophilic isolates From the Great Salt Lake***
Erik Nels Oberg, 16, Sophomore, Weber High School, Ogden, Utah, T: Bill Cruff
- MI036 Antibiotic-Resistance Inhibition by Bacterial Demographics**
Deepika Nemani, 17, Senior, Oakton High School, Vienna, Virginia, T: Jackie Curley
- MI037 Effects of Prebiotic Treatment on Fermented Foods**
Lauren Margaret Wherley, 17, Senior, School of the Osage, Kaiser, Missouri, T: Constance Wyrick
- MI038 Salmonella Mutagenesis**
Stephanie W. Chen, 18, Senior, Bountiful High School, Bountiful, Utah, T: Dwight Brown
- MI039 Jet Fuel Pollution—Microbial Solution of Effective Biofermentor: Phase IV**
Taylor Shaw Oberg, 18, Senior, Weber High School, Pleasant View, Utah, T: Darlene Bell
- MI040 Coliform Pollution and *E. coli* Antibiotic Resistance Patterns in River Basins and Their Relationship to the Bovine Industry**
Grace Ellen Marx, 17, Senior, Sunnyside Christian High School, Sunnyside, Washington, T: Joyce E. Stark
- MI041 Inhibition of Salmonella and *E. coli*: Two-Year Study**
Nicole Marie Vincent, 17, Junior, Mississippi School for Mathematics & Science, Columbus, Mississippi, T: Mary Davidson
- MI042 Fingerprint Type Similarities in Related and Non-Related Subject Pairs**
Allison Ann Jochim, 17, Junior, Joplin-Inverness High School, Joplin, Montana, T: Jeffery R. Wehr
- MI043 Effects of UV Radiation on the *S. cerevisiae* RAD2 and RAD14 Mutants: Three-Year Study**
Natasha Meriem Girgis, 18, Senior, North Attleboro High School, North Attleboro, Massachusetts, T: David R. Vito
- MI044 Electric Bacteria—Affect of Electricity on Bacterial Growth**
Luca Jametti Peruzzotti, 17, Junior, Carolina Forest High School, Myrtle Beach, South Carolina, T: Ginger Jacobs
- MI045 Effects of Herbs vs. Antibiotics Against Bacteria**
Jessica Marie Fike, 16, Junior, Mount De Chantal Academy, Wheeling, West Virginia, T: Shirley Wilson
- MI046 Synthesis of cDNA via Primer Adapters**
Martin Vasilev Kurtev, 19, Senior, Lincoln Park High School, Chicago, Illinois, T: Patricia Riley
- MI047 Effects of Antibacterial Soaps on Bacterial Growth**
John Christopher Sikorski, 15, Freshman, Park City High School, Park City, Utah, T: Edward Mulick
- MI048 George Washington's Dirty Side—Bacteria on Circulated Money**
Karl David Bringham, 15, Freshman, Mont Harmon Jr. High, Price, Utah, T: Terry S. Bikakis
- MI049 Crossover Rate Variation in *Sordaria fimicola* as Caused by Bisphenol-A: Two-Year Study**
Ryan Edward Casey, 17, Junior, North Attleboro High School, North Attleboro, Massachusetts, T: David R. Vito
- MI050 PfEGF-8 as a Vaccine Candidate Against the Human Malaria Parasite *Plasmodium falciparum***
Cordelia Rose Ziraldo, 18, Senior, Cass Technical High School, Detroit, Michigan, T: Karen Ann Kachadurian
- MI051 Effect of a Disinfectant on Bacteria Over Time in a Day Care Center**
Tiffany Anne Markyvech, 16, Sophomore, Divine Child High School, Dearborn, Michigan, T: Kathy Higgins-Luthman
- MI052 Mycoplasma Persistence in Harlan Sprague Dawley Rats**
Stacy Renee Finkbeiner, 17, Senior, Saginaw Arts and Sciences Academy, Saginaw, Michigan, T: Gary Barker
- MI053 Comparison of the Effectiveness of Ampicillin and Bacteriophage Against Ampicillin-Resistant *E. coli***
Kendal Anne Willison, 15, Freshman, East Noble High School, Kendallville, Indiana, T: Harold Sollenberger
- MI054 Effects of Lemon Juice on *Rhizopus stolonifer***
Robinson Seda Padilla, 15, Sophomore, Leonides Morales, Lajas, Puerto Rico, T: Luis Felipe Vargas
- MI055 Antibiotic Resistance—Millennium Bug**
Melanie Violet Ottenbacher, 16, Sophomore, Selby High School, Selby, South Dakota, T: Gary Fahrni
- MI056 Chromosome III in Yeast Genome—Effect of Unlinked Suppressor on Revertant *Tyhis3* Insertion at the HML α Locus: Two-Year Study**
Elizabeth Anne Donaldson, 16, Junior, Allegany High School, Cumberland, Maryland, T: Edwin Dunn
- MI057 Effects of Telomerase Inhibition on the Senescence Rate in *Saccharomyces cerevisiae***
Dilip Bobby Biswal, 18, Senior, Monte Vista High School, Danville, California, T: Patricia Carothers
- MI058 Temperature and the Susceptibility of Antibiotics on *Pseudomonas***
Tiffany Meriweather, 16, Junior, Benjamin E. Mays High School, Atlanta, Georgia, T: Alma James
- MI059 Growth Regulators of *Agrobacterium tumefaciens***
Sara Jo Weirather, 15, Freshman, Central Lee High School, Donnellson, Iowa, T: Ernest Schiller
- MI060 Effects of Different Restriction Enzymes on Restriction Sites of Plasmid DNA**
KaTrina Yazzie, 18, Senior, Wingate High School, Fort Wingate, New Mexico, T: Michelle Eustice
- MI061 Mystic Realm of Garlic—*Allium* Combating Bacteria: Three-Year Study**
Ashley Marie Sarracino, 16, Junior, Grants High School, Grants, New Mexico, T: Shelby Alexander
- MI062 *Allium sativum*—Exploring Topical Antibacterial Possibilities: Three-Year Study**
Jason Daniel Creighton, 16, Sophomore, Gorham-Fayette High School, Fayette, Ohio, T: Eunice F. Jackson
- MI063 *In vitro* and *in vivo* Study of Bacteriophage Therapy**
Joan Denise Beckman, 18, Senior, Jamestown High School, Jamestown, North Dakota, T: Phil Kroeber
- MI064 BioMolecular TB Control**
Romina Perri, 16, Sophomore, Sacred Heart School of Montreal, Montreal, Quebec, Canada, T: J. Thomas
- MI065 Correlating Yeast and Human DNA Repair Genes**
Krystal J.M. Godri, 17, Junior, Havergal College, Toronto, Ontario, Canada, T: Lois Rowe
- MI066 Identification of Quinoxaline Metabolites by *Cunninghamella elegans* and *Phanerochaete chrysosporium***
Samuel Ryan Leslie, 17, Junior, Drew Central High School, Monticello, Arkansas, T: Dennis Thurman
- MI067 Effects of Caffeine, Garlic and Onion Extract on *Streptococcus* and *E. coli* Bacteria**
Romina P. Bria, 17, Senior, Hilton Head High School, Hilton Head Island, South Carolina, T: N. Kathryn Howard
- MI068 Putative Role of Chemokine Receptors and Viral Protein R in TH2-Cytokine-Mediated Pathogenesis of SHIV**
Rishikesh Pradip Dalal, 18, Senior, Shawnee Mission Northwest High School, Shawnee Mission, Kansas, T: Robert Siemens
- MI069 Soya's Drink—Improvement of its Nutritional Quality With the Incorporation of Lactic Bacteria**
Lourdes Cecilia Burt, 17, Senior, Private Institute Nuestra Senora de la Consolacion, Concepcion, Tucuman, Argentina, T: Marisa S. Garro
- MI070 Nitric Oxide and Activation—Associated Cell Death**
Anna F. Wang, 16, Sophomore, Shawnee Mission East High School, Prairie Village, Kansas, T: F. Coleman Ogdon III

MI301T Effects of Tetracycline on Direct-Fed Microbials
Bridgette Kathleen Corson, 18, Senior
Amanda Gail Moniz, 18, Senior
Moore High School, Moore, Oklahoma
T: Gina Randolph

MI302T Natural Antibiotics—Effects of Five Different Herbal Substances on *Serratia marsecens* and *Staph aureus*
Emily Claire Letourneau, 14, Freshman
Anna Mary Bishop, 15, Freshman
Como Park Senior High School, St Paul, Minnesota
T: Arthur Payne
Central High School, St Paul, Minnesota

MI303T DNA Analysis of Calanoids in the Ruby Mountain Lakes
Lynsie Annette Paul, 18, Senior
Brandi Natasha Cobb, 18, Senior
Carlin High School, Carlin, Nevada
T: Steve Feasel

MI304T Effect of Air-Exposure Time on the Antifungal Properties of Garlic Juice: Two-Year Study
Sarah Cooperrider Moore, 16, Sophomore
Lia Caroline Carpeneti, 16, Sophomore
Juneau-Douglas High School, Juneau, Alaska
T: Erik Lundquist

MI305T Toxicity in Potato Salad
Icha Marie Benitaz, 17, Senior
Lournet Martinez, 17, Senior
Dr. Juan J. Osuna, Caguas, Puerto Rico
T: Maria T. Crespo

MI306T Toxigenic Effects of Microbial Growth in a Secondary School Building Due to Inadequate Air Control
Maegan Latrice Mitchell, 17, Junior
Anthony Schwartz, 17, Senior
Octavia Jackson, 17, Junior
Murray High School, Jackson, Mississippi
T: Cindy K. Cook

MI307T Effects of Penicillin on *Staphylococcus aureus*
Stephanie Joan West, 15, Sophomore
Melissa Leann Lossing, 16, Sophomore
Outlook High School, Outlook, Montana
T: Mike Flamm

MI308T Is This Biocide Biosafe? Two-Year Study
Sarah May Charlton, 18, Senior
Katherine Bo Gunst, 17, Senior
University Of Toronto Schools, Toronto, Canada
T: Meg O'Mahony

MI309T Control of Bacteriophage Lambda Replication in an *E. coli* Strain Lacking Histone-Like Protein Hu
Xiaoyin Chen, 13, Junior
Zhou Fang, 13, Junior
Beijing No. 8 High School, Beijing, China
T: Nianzu Cheng
T: Li Huang

MI310T Effects of Smoke on Throat Flora
Luke V. Yohe, 16, Junior
Trevor Dru Nash-Keller, 16, Sophomore
Selby High School, Selby, South Dakota
T: Gary Fahrni

MI311T Cyro-Bacteria
Esteban Adrian Mendoza, 17, Senior
Mario Ivan Mulc, 16, Senior
Javier Francisco Lizundia, 16, Senior
Instituto Leonardo Murialdo, Guaymallen, Mendoza, Argentina
T: Edgardo N. Allendes

MI312T Characterization of *Xanthomonas axonopodis* pv. *dieffenbachiae*
Paula Diez Castilho, 15, Sophomore
Lara Abou Ezzedine, 15, Sophomore
Escola Americana de Campinas, Campinas, Sao Paulo, Brasil
T: Vivian H. Schlesinger

MI313T Pasteurized and Unpasteurized Milk—What's the Difference?
Kristin Dawn Code, 16, Junior
Kathryn Camille Haupt, 17, Junior
Red Mountain High School, Mesa, Arizona
T: Lorelei Wood

MI314T Search, Discovery and Characterization of a Lytic Bacteriophage Which Infects *E. coli*
Heather M. Menning, 16, Sophomore
Julie Renee Garon, 16, Sophomore
Hamilton High School, Hamilton, Montana
T: Marie Antonoli

MI315T Antibacterial Properties of Turmeric
Nasha Nijhawan, 16, Senior
Ann Marie McKenna, 17, Senior
University Of Toronto Schools, Toronto, Canada
T: Meg O'Mahoney

MI316T What's in Your Bottled Water?
Rebecca Ann Taylor, 15, Sophomore
Shelly Kate Collins, 15, Sophomore
John S. Davidson Fine Arts School, Augusta, Georgia
T: Barbara Howerton

PHYSICS

GRAND AWARDS PRESENTED BY: INTEL

PH001 Scratch Holography
Elizabeth W. Curry, 16, Sophomore, Port Saint Joe High School, Port Saint Joe, Florida, T: Tammy J. Owens

PH002 Optimization of Gallium arsenide Semiconductor Laser Power Output
Zlatan Ceric, 16, Senior, Allen D Nease High School, St Augustine, Florida, T: Sally Mitalas

PH003 What Shaped Parachute Stays Suspended the Longest?
Ryan D. McIntyre, 15, Sophomore, Lakewood Ranch High School, Bradenton, Florida, T: Sherri Pearson

PH004 Use of Laser Interferometry to Create Holographic Optical Elements
Jo Anna Wiersma, 18, Senior, Okeechobee High School, Okeechobee, Florida, T: Joe M. Arnold

PH005 Violin Bridge—Will the Stradivarius Legend Continue?
Michael T. Hasper, 17, Junior, Maclay High School, Tallahassee, Florida, T: Mary J. King

PH006 Radiation in Altamaha River Mussels
Gregory Arthur Christian, 17, Junior, Glynn Academy, Brunswick, Georgia, T: Ingrid Brown

PH007 Second Helping of Sonoluminescence for the Soul
Touchton Caruthers, 18, Senior, Wildwood High School, Wildwood, Florida, T: Emily Keeler

PH008 Thermocouples
Adria Viridiana Marquez, 16, Junior, Franklin High School, El Paso, Texas, T: Alicia Stevens

PH009 Discrete Electron Density Theory—Finite Tensor Solutions to Schrodinger's Equation
Jason L. Douglas, 18, Senior, Cincinnati Country Day School, Cincinnati, Ohio, T: Brock Miller

PH010 Lift vs. Angle of Incidence
Adam James Obst, 15, Freshman, James Wood High School, Winchester, Virginia, T: Richard Ashbacher

PH011 Battery of Tests
Michael Jeffrey Johnson, 15, Freshman, Nettleton Junior High School, Jonesboro, Arkansas, T: Annette Holder

PH012 Isolating Plasma Species—Initiating Internal Electrostatic Fields for Plasma Heating
Garrett J. Young, 17, Junior, Young Homeschool, Branchburg, New Jersey, T: Keith Young

- PH013 Full-Range Pressure Gauge by Using Optical Refraction Method**
Fu-Feng David Lee, 14, Freshman, Chiao-Nan Junior High School, Miao-Li, Taiwan, Chinese Taipei, T: Hsing-Tsong Chen
- PH014 Power Averaging of Capacitors' Energy Supplies**
Mark Lavelly Biedler, 15, Sophomore, Musselman High School, Bunker Hill, West Virginia, T: Karen J. Ash
- PH015 Electromagnetic Cannon: Three-Year Study**
Mathew Jacks Beck, 17, Junior, Wayne High School, Huber Heights, Ohio, T: Norma Howell
- PH016 Evolution of the Giant Dipole Resonance Width With Nuclear Temperature in ¹²⁰Sn**
Kaury T. Eisenman, 17, Senior, Kalamazoo Area Mathematics and Science Center, Kalamazoo, Michigan, T: John Goudie
- PH017 Does Water Pressure Decrease as Speed Increases?**
Ross Andrew Coleman, 15, Freshman, Winner High School, Winner, South Dakota, T: Randy Kludt
- PH018 Evaluating Primitive Archery: Phase II**
Caleb K. McAdoo, 16, Sophomore, Elko High School, Elko, Nevada, T: Jeff Wallock
- PH019 Doubling the Frequency of Light—Second Harmonic Generation in Periodically-Poled Lithium Niobate**
Tina Shih, 17, Senior, Townsend Harris High School/Queens College, Flushing, New York, T: Odile Garcia
- PH022 Laser Diffraction From a Fractal Aperture**
Jonathan Robert Murphy, 18, Senior, Tullahoma High School, Tullahoma, Tennessee, T: Harold Liner
- PH023 Botanical Survey Using Optical Coherence Tomography**
Gabriel Brian Loeb, 15, Sophomore, Catalina Foothills High School, Tucson, Arizona, T: Ann Marie Condes
- PH024 Mass Spectroscopy of Multicharged Ions**
Sean Patrick Keely, 17, Senior, Edward C Reed High School, Sparks, Nevada, T: Ron Phaneuf
- PH025 Characterization of Oxidation Resistant Magnetic Thin Films**
Charles F. Cadieu, 18, Senior, John L. Miller-Great Neck North High School, Great Neck, New York, T: Alan Schorn
- PH026 Direct Measurement of the Speed of Light**
Christina Marie Derbidge, 17, Senior, Layton High School, Layton, Utah, T: Phil A. Walthers
- PH027 How Does Bounce Relate to Distance in Golf Balls?**
Justin Thomas Scott, 16, Sophomore, Whitehouse High School, Whitehouse, Texas, T: Helen Mears
- PH028 Does Newton Know? Phase II**
Joshua Neil Copeland, 17, Junior, West Ouachita High School, West Monroe, Louisiana, T: Matt Davis
- PH029 Euclidian Solutions in Quantum Gravity**
Daniel Richard Green, 17, Senior, Handsworth Secondary School, N Vancouver, Canada, T: Patricia Gall
- PH030 Bee Heard—Can *Apis mellifera* Perceive Sounds?**
Charina Terranova Cameron, 18, Senior, Horton District High School, Greenwich, Nova Scotia, Canada, T: Tracy Webb
- PH031 Go With the Flow—Testing Drag Coefficients During Air Acceleration and Deceleration: Phase II**
Jeffrey Peter McQuillan, 17, Junior, Falmouth Academy, Falmouth, Massachusetts, T: Mary Ellen Stephen
- PH032 Photoelastic Stress Analysis of Rigid Inclusion in Polymer Matrix**
Jeffrey C. Payne, 18, Senior, Wilson High School, West Lawn, Pennsylvania, T: Michael Gerhart
- PH033 Non-Intrusive Speed Determination by Doppler Shift**
Glen G. Cheng, 15, Freshman, Ruidoso High School, Ruidoso, New Mexico, T: Rick Overdorf
- PH034 High-Energy Particle Effects in a Plasma Media**
Steffen Brice Caston, 18, Senior, Murray-Wright High School, Detroit, Michigan, T: Robert Santavicca
- PH035 Crystal Growth Variation of the Bak-Sneppen Evolution Model**
Sameer S. Walavalkar, 17, Junior, Detroit Country Day School, Beverly Hills, Michigan, T: Harry Fried
- PH036 Toward a Framework for Quantifying Timbre: Phase III**
Leanne E. Dodge, 18, Senior, Bloomington High School South, Bloomington, Indiana, T: Cindy Kvale
- PH037 Insulation: Which Type Is Best?**
Courtney Lea Luster, 15, Freshman, Wetumpka High School, Wetumpka, Alabama, T: Virginia A. Vilard
- PH038 Aqua Shock—Effects of Electricity on the Growth of Plants: Two-Year Study**
Timothy Justin McDonald, 16, Sophomore, Jefferson High School, Shenandoah Junction, West Virginia, T: Heather Yeater
- PH039 Scratch Holography Viewing Dimensions: Two-Year Study**
Brian Thomas Pletcher, 17, Senior, Lausanne Collegiate School, Memphis, Tennessee, T: Joan Burr
- PH040 Defects in Thin Film Solar Cells**
Martin Dienstbier, 19, Senior, Gymnasium Christiana Dopplera, Prague, Czech Republic, T: Zdenek Kluiber
- PH041 Feel the Force—Equivalence of General Relativity and Gauge Theory**
Oludamini Denison Ogunnaike, 14, Freshman, Charter School of Wilmington, Wilmington, Delaware, T: Beenu Gupta
- PH043 Twist on Faraday—Electric and Electro-magnetic Interactions**
Joseph Alexander Palatinus, 16, Junior, Oak Ridge High School, Oak Ridge, Tennessee, T: Jacquelyn Jacoby
- PH044 Transmission of UVA/UVB Light Through Sunscreens With the Same Sun-Protection Factor**
Henrik Sahlin Pettersen, 20, Freshman, Trondheim Katedralskole, Trondheim, Norway, T: Knut Bodsberg
- PH045 Optimization of an AC Susceptometer for Low Tc Superconductivity Measurements**
Matthew Douglas Baumann, 18, Senior, Sir Winston Churchill Secondary School, Saint Catharines, Ontario, Canada, T: Dave Rogbzihski
- PH046 Particle Sizes by Laser Scattering in Cloudy Water**
Peter Hermann Kurzweg, 17, Senior, Fox Chapel Area High School, Pittsburgh, Pennsylvania, T: Gregory Schubert
- PH047 Bernoulli's Principle**
Rob J. Fell, 15, Freshman, Tioga High School, Tioga, North Dakota, T: Deb Moe
- PH048 New Method for Computation of Wave Functions Using the Reverse Cantor Set Based Rational Delta Function**
Aadel Ahmed Chaudhuri, 17, Senior, West High School, Salt Lake City, Utah, T: Melissa Anderson
- PH049 Scatter of Falling Objects—Debris Scatter Uncovers Crash Mysteries: Three-Year Study**
Dinushika A. Mohottige, 15, Sophomore, Suncoast High Community School, Riviera Beach, Florida, T: Brian Murray
- PH050 Sound Techniques for Studying Granular Material**
Naveen N. Sinha, 15, Freshman, Los Alamos High School, Los Alamos, New Mexico
- PH051 Shake It Up**
Claire Anne Evans, 14, Freshman, James Madison High School, Vienna, Virginia, T: Greg Shifflett
- PH052 Sonoluminescence—Probing the Elusive Glow**
Aaron Jonathan Judah, 16, Junior, Marc Garneau Collegiate Inst, Don Mills, Ontario, Canada, T: Henry Van Bommel
- PH053 Effect of an Excimer Laser on *Morpho menelaus* Wings**
Rachel Lauren Rosenberg, 15, Freshman, Hilton Head High School, Hilton Head Island, South Carolina, T: Stephanie McNulty
- PH054 Do You Hear What I Hear?**
Mary Grier Cash, 16, Junior, Gaffney Senior High School, Gaffney, South Carolina, T: Wendy D. Tindall
- PH055 Art Deterioration—Deleterious Environmental Effects of Tobacco Smoke**
Megan Frances Juel, 15, Freshman, East High School, Duluth, Minnesota, T: Kathy Manteuffel
- PH301T Reality vs. Virtuality**
Alan Jerry Huang, 15, Sophomore
Darius C Wu, 15, Sophomore
Shepton Freshman High School, Plano, Texas
T: Nadine Harris

- PH302T Frequency and Laser-Based Measuring Instrument**
Ming Fung Yong, 17, Junior
Wee Siong Chong, 18, Junior
Chiing Sung Lee, 17, Junior
SMB Chung Hua Miri, Miri, Sarawak, Malaysia
T: Khaw Ai Guat
- PH303T Which Substance Produces the Most Radioactive Particles?**
Josh Mark Andrews, 15, Freshman
Chase Taylor Masters, 14, Freshman
Henry County High School, McDonough, Georgia
T: Rachel E. Foster
- PH304T Seats on a Bus Bounce Up and Down—Difference in 3-D Acceleration in Various Seats on a Given School Bus**
Matthew Alan Josefy, 17, Senior
Justin Lee Gregg, 18, Senior
Midland High School, Midland, Texas
T: Charles Bell
- PH305T Exciting Electrons**
Shaina Sophie Potts, 16, Junior
Vanessa J. Fleming, 17, Senior
Georgiana Bruce Kirby Prep. School, Santa Cruz, California

- ZO013 How Ascorbic Acid Affects the Movement of *Lumbriculus variegatus***
Anne M. Simon, 18, Senior, Divine Savior-Holy Angels High School, Milwaukee, Wisconsin, T: Betty Jo Azpell
- ZO014 Enhancing the Shelf Life of Hard Shell Clam: Three-Year Study**
Brian Michael Smith, 17, Senior, Union County High School, Lake Butler, Florida, T: Renae Allen
- ZO015 Correlation of Tardigrade Diversity, Distribution and Abundance in the Area Around a Coal-Burning Power Plant: Phase II**
Amber Marie Hohl, 17, Junior, Central Lee High School, Donnellson, Iowa, T: Ernest Schiller
- ZO016 *Daphnia magna*—Alternative Model for *in vivo* Assessment of Cardiac Toxicity: Three-Year Study**
Stephanie Nicole Grant, 17, Junior, Dupont Manual Magnet High School, Louisville, Kentucky, T: Robert Gilbert
- ZO017 Habitat Suitability of the Delmarva Fox Squirrel: Three-Year Study**
Amelia Beth Wolflin, 18, Senior, Queen Annes County High School, Centreville, Maryland, T: Jemina Clark
- ZO018 Photoperiodic Regulation of Adipocyte Gene Expression in Hamsters**
Carolyn Adele Krisel, 18, Senior, Summerville High School, Summerville, South Carolina, T: Sarah Hudson
- ZO019 Home for the Homeless Ladybug: Two-Year Study**
Eric Lee Oestman, 17, Junior, Wray High School, Wray, Colorado, T: Jay Clapper
- ZO020 Diatomaceous Earth for Natural Parasitic Maintenance**
Joel Andrew Snyder, 17, Sophomore, Calvary Baptist Academy, Huntsville, Alabama, T: Andrew V. Fogle
- ZO021 Antarctica Krill and a Highland Microcrustacean From Perú in Their Ecology Niche**
Juan Carlos Ramirez Tapia, 16, Junior, Salesiano Santa Rosa, Huancayo, Junin, Peru, T: Marco A. Sarmiento Cornejo
- ZO022 Effects of Cryoprotectants on the Revivification of Frozen Crickets: Three-Year Study**
Ellyn Anne Easley, 17, Senior, Alamogordo Senior High School, Alamogordo, New Mexico, T: Kevin Blackstone
- ZO023 Feed Intake, Weight Gain, Body Growth, Leanness and Muscle Mass of the *Suidae sus scrofa*: Phase V**
Abigail Brigitte Taylor, 17, Junior, West Jones Junior Senior High School, Laurel, Mississippi, T: Denise C. Taylor
- ZO024 Bug Off!**
Lauren Marie Dorgant, 17, Senior, Avoyelles High School, Moreauville, Louisiana, T: George Couvillon
- ZO025 Parasitic Influence on Ovis: Two-Year Study**
Gretchen Lynn Wilson, 16, Junior, West Central High School of Stuart, Stuart, Iowa, T: Larry Schwinger
- ZO026 Temperature and Insect Metabolism**
Rachel Carroll Chaffin, 17, Junior, Winfield High School, Winfield, West Virginia, T: Caren Thomas
- ZO027 Cattle Egrets in Jamaica**
Hasan Aluho Small, 18, Senior, Knox Community College, Clarendon, Jamaica, T: Errol C. Miller
- ZO028 Fossil Rudist**
Mark Che deFreitas, 20, Senior, Knox Community College, Clarendon, Jamaica, T: Errol C. Miller
- ZO029 Advent of Human-Safe Pest Controls—Influence of Vitamin A on *Blattella germanica*: Three-Year Study**
Amanda L. Koppel, 17, Junior, Chantilly High School, Chantilly, Virginia, T: Jim Jarvis
- ZO030 Effects of Clomiphene on *Mus domesticus***
Adam James Krohn, 17, Senior, Weber High School, Ogden, Utah, T: Lareen Radle
- ZO031 Where Have All the Frogs Gone? Investigation Into the Effects of UV Radiation on *Xenopus laevis*: Three-Year Study**
Adrienne Danielle Howse, 17, Junior, Mississippi School for Mathematics & Science, Columbus, Mississippi, T: Mary Davidson
- ZO032 Effect of Human Presence on Osprey**
Krista J. Mougey, 16, Sophomore, Colstrip High School, Colstrip, Montana, T: Bernie Smith

ZOOLOGY

GRAND AWARDS PRESENTED BY:

INTEL

- ZO001 Statistical Analysis of Pre-Anesthetic Canine Who Have Regenerative or Non-Regenerative Anemia as Determined by Hematocrits**
Petra Louise Risco-Adam, 17, Senior, F.W. Springstead High School, Spring Hill, Florida, T: Craig W. Gates
- ZO002 Resource Partitioning in Insects**
Aubrey Nell Hankins, 19, Senior, Hudson High School, Hudson, Florida, T: Yvonne T. Whatley
- ZO003 Yeastibodies**
Daniel James Powell, 17, Senior, Fort Pierce Westwood High School, Fort Pierce, Florida, T: Ramona Weimerskirch
- ZO004 Effects of Saltwater Intrusion on Invertebrate Freshwater Life Forms**
Jason Bennett Moody, 15, Freshman, Palatka High School, Palatka, Florida, T: Lulu G. Parish
- ZO005 Fecal Egg Output of Parasites in Equine: Phase II**
Andrew P. Soucie, 16, Sophomore, Hildreth Public High School, Hildreth, Nebraska, T: Randall Lienemann
- ZO006 Shedding Light on *LAGodon rhomboides* Feeding**
Stephanie Anne Hanisak, 15, Freshman, Vero Beach Senior High School, Vero Beach, Florida, T: Carol Haffield
- ZO007 Will the Extraction of the Somatic Cell Influence Antibiotic Drug Residue Tester Results? Phase II**
Anthony Jerome Moldan, 16, Sophomore, Cathedral High School, New Ulm, Minnesota, T: Judy Luker
- ZO008 Use of Therapeutic Ultrasound in Stimulating the Production of Calcium Carbonate in *Orconectes immunis***
Chelsea M. Chester, 16, Sophomore, Cocoa Beach High School, Cocoa Beach, Florida, T: David Schiffert
- ZO009 Miracle of Metamorphosis—Effects of Chemical Pollution on *Lepidoptern* Development: Two-Year Study**
Michelle Elizabeth Afkhami, 16, Sophomore, Williams High School, Plano, Texas, T: Elizabeth Priddy
- ZO010 Functional Analysis of the *Drosophila* H731 Protein by the Yeast Two-Hybrid System**
Hsin Chen, 17, Senior, Taipei Municipal First Girls' Senior High School, Taipei, Chinese Taipei, T: Ying-Tzu Lin
- ZO012 Prognosis for Survival of *Panthera tigris tigris* at Nandan Kanan, Biological Park**
Swati Mishra, 15, Freshman, Delhi Public School, Rourkela, Orissa, India, T: Bijoy Bahadur Mathur

- ZO033 Induced Responses Affect Cabbage Loopers on Potato Plants**
Laura Kate Tom, 15, Sophomore, West Valley High School, Yakima, Washington, T: Dan Noll
- ZO034 Ants Go Marching Two by Two—Multivariate Analysis of the Physical and Chemical Communication of Formicidae Species**
Kerry Ann Geiler, 17, Senior, Massapequa High School, Massapequa, New York, T: Paul Lichtman
- ZO035 Apparently They Like It**
Erin Elizabeth Johnson, 18, Senior, Seneca Senior High School, Seneca, South Carolina, T: Barbara Wroblewski
- ZO036 Is Catnip an Effective Roach Repellent?**
Samantha Renee Wisniewski, 18, Senior, Mayo High School, Darlington, South Carolina, T: Laura Bellum
- ZO037 Effects of Oxytocin on Social and Maternal Attachment in Neonatal Prairie Voles**
Yevgeny Brudno, 18, Senior, Montgomery Blair High School, Silver Spring, Maryland, T: Jonetta Russell
- ZO038 Effects of Gating on Bat Behaviors in Abandoned Mines**
Geneya Cox, 17, Junior, Pine View High School, Saint George, Utah, T: Steven Cox
- ZO039 Post-Exercise Reduction in Baroreflex Function in Hypertensive Rats**
Geneice Faye McCloud, 17, Senior, Martin Luther King Junior-Senior High School, Detroit, Michigan, T: Karen Forsyth
- ZO040 Tracing "Juvenile Hormone" Through Ligation in *Phormia***
Pavi Elle Shanell Poole, 15, Sophomore, Detroit High School for Fine and Performing Arts, Detroit, Michigan, T: Mary K. Edmunds
- ZO042 Effect of *Tityus stigmurus* Venom on Rat Phrenic Nerve Diaphragm**
Bruno Levi D'Ancona, 17, Junior, Escola Americana de Campinas, Campinas, Sao Paulo, Brasil, T: Vivian H. Schlesinger
- ZO043 Epidemiology of *Metarhizium Anisopliae* in Termites**
Ross Howard Lang, 14, Freshman, Pennsylvania Home Schoolers, Kittanning, Pennsylvania, T: Cynthia Lang
- ZO044 Effect of UV Rays on the Metamorphosis of *Xenopus***
Lauren Allison Oldham, 16, Junior, Westview High School, Martin, Tennessee, T: Rosemary A. Neville
- ZO045 Small Mammals of Background Ecosystems of South Yakutia Taiga**
Alexander Yu. Rozhkov, 16, Sophomore, Gymnasium #1, Olyokminsk, Sakha Republic, Russia, T: Olga Y. Rozhkova
- ZO046 Cell Regeneration—Effects of *Symphytum officinale* on Planarians**
Lucy Clare Weflen, 15, Sophomore, Saint Mary's High School, Phoenix, Arizona, T: Joelle Dondeville
- ZO047 Behavioral Response of a Lowland Gorilla Troop to Silverback Absence**
Blair Dashell Beverly, 16, Sophomore, La Jolla High School, La Jolla, California, T: Martin Teachworth
- ZO048 Physiological Battle of Probiotics**
Kayla Ann Muehler, 17, Senior, Hankinson Public School, Hankinson, North Dakota, T: Marcus Friskop
- ZO049 How Does a Male Dragonfly Recognize Other Males of the Same Species?**
Yuma Takahashi, 16, Sophomore, Mitaka High School, Tokyo, Japan, T: Yukako Katsuta
- ZO050 Behavior of *Aphanius mento***
Oz Nahum, 20, Senior, Danciger Comprehensive High School, Kiriyat Shmona, Israel
- ZO051 Species Specific O₂ Utilization and Lactate Production in Pelagic Stage Sea Turtles During Swimming and Rest**
Kathleen Sasha Kelso, 14, Freshman, Atlantic Community High School, Delray Beach, Florida, T: Frederick Hock
- ZO052 Molecular Phylogeny of *Centrarchidae*: Two-Year Study**
Christopher B. Allen, 18, Senior, Wellington High School, Wellington, Florida, T: Charlsa A. Henderson
- ZO053 Effectiveness of *Bacillus spaericus* in Controlling the Larvae of the Salt Marsh Mosquito *Aedes sollicitans* and the Possible Consequences of Such Control on the Ecosystem**
Emma Louise Smith, 18, Senior, Mount Baker Senior High School, Deming, Washington, T: David C. Tucker
- ZO301T Colored Light at the End of the Tunnel**
Jamie Michelle Johnson, 16, Sophomore
Jessica Lynn McAlister, 16, Sophomore
William J. Palmer High School, Colorado Springs, Colorado
T: Brad Bogard
- ZO302T Studies on Resistance in *Varroa jacobsoni* to Tau-Fluvalinate**
Emily L. Sammons, 18, Senior
Julia Marie Badger, 18, Senior
Francis Howell High School, Saint Charles, Missouri
T: Gayle Perman
- ZO303T Gorillas in the Concrete Jungle—Captive and Wild Gorilla Behaviors in Relation to Social and Physical Environmental Variance**
Yonah Ra'ama Cohen, 17, Senior
Laurel Elizabeth Stephens, 17, Senior
Nederland Junior/Senior High School, Nederland, Colorado
T: Alberto Real
- ZO304T Effects of Tartrazine on Cellular Processes of Selected Organisms: Three-Year Study**
Annie Maria Vaughan, 18, Senior
Tara Lynn Rosenberg, 17, Senior
Yazoo City High School, Yazoo City, Mississippi
T: Debra Raddin
T: Kim Patterson
- ZO305T Ecological Survey of Salangids in the Tianjing Lake and Tuo Lake Around Bengbu Area**
Yi Zheng, 16, Junior
Qin Luo, 17, Junior
Bengbu, No. 2 High School, Bengbu, Anhui, China
- ZO306T Population Fluctuations of *Eleutherodactylus* in Southern Puerto Rico: Phase II**
Juan Carlos Munoz-Gonzalez, 17, Senior
Carlos Juan Munoz-Gonzalez, 17, Senior
Carmen Belen Veiga High School, Juana Diaz, Puerto Rico
T: Mercedes Zayas-Gonzalez
- ZO307T Influence of Feeding Rabbits With *Salix ellegantisima* in Their Reproductive Cycle**
Ronnald Alberto Caches Marfurt, 16, Junior
Fernando Gaston Delgado, 18, Junior
Liceo Departamental No. 1 Alfonso Espinoza, San Jose, Uruguay
T: Nilda B. Marfurt Carbajal
- ZO308T Corn Grainulometry—Alternative to Cost Reduction and Waste in Production of Chicken**
Acson Luiz Bosetti, 17, Senior
Erivelton Zanon, 18, Senior
Paulo Antonio Brunetto, 19, Senior
Escola Agrotecnica Federal de Concordia, Concordia, Santa Catarina, Brasil
T: Rogerio L. Kerber
- ZO309T Amphibians in Northeastern Thailand—Species Diversity, Morphological Differences and Growth Behavior**
Teerasak Chokchai, 17, Senior
Mayuree Khotmanee, 19, Senior
Siraporn Ubkeaw, 18, Senior
Muang Phon Phit Tha Ya Khom School, Khonkaen, Thailand
T: Varapich Patanasethanon

TEAM PROJECTS

GRAND AWARDS PRESENTED BY: SCIENCE NEWS

- BE301T Affect of Classical Music on Living Things**
Katie Joy Kingdon, 15, Freshman
Emily Jane LeBlanc, 14, Freshman
Heather Hornsby, 15, Freshman
Houma Junior High School, Houma, Louisiana
T: Brenna Barthel

- BE302T The Write Stuff—Improvement of Writing Skills**
 Brian Charles Hardy, 16, Sophomore
 Sarah Elizabeth Wolff, 16, Junior
 Cheyenne Central High School, Cheyenne, Wyoming
 T: Sherrie McDowell
 T: Robert Hodges
- BE303T Effects of Visual Distractions on Hearing Acuity of Preadolescents**
 Christopher James Lauten, 15, Freshman
 Matthew William Sand, 15, Freshman
 Lake Highland Preparatory School, Orlando, Florida
 T: Christi Tamayo
- BE304T Luck or Diligence—Examination of Differences in Locus of Control**
 # Sarah Elizabeth Guffey, 17, Junior
 Jonathan Carr McDaniel, 18, Senior
 Robert G. Neal, 17, Senior
 Nettleton High School, Jonesboro, Arkansas
 T: Karen Ladd
- BE305T Eyewitness**
 Seth Jon Rizzuto, 17, Junior
 Brooke Elizabeth Roussel, 17, Junior
 Lutcher High School, Lutcher, Louisiana
 T: Philip Creel
- BE306T Personality by Birth**
 Amanda Leigh McGregor, 15, Sophomore
 Ashley Mae Hall, 15, Sophomore
 Henrietta High School, Henrietta, Texas
 T: Doug Underwood
- BE307T Does the Major Histocompatibility Complex Play a Role in the Mate Selection of Humans?**
 Natalie Rose Haddox, 18, Senior
 Kari Arrielle Baldonado, 18, Senior
 Tahlequah Senior High School, Tahlequah, Oklahoma
 T: Vickie Elliott
- BE308T Eva Perón: A Woman...A People**
 Sonia Alejandra Maidana, 18, Senior
 Gonzalo Gabriel Siebenhard, 18, Senior
 Patricio Cesar Sieber, 18, Senior
 Colegio de Cerrito, Cerrito, Entre Rios, Argentina
 T: Miriam A. Hernandez
- BE309T Me...A Politician?**
 Maria Virginia Grosso, 14, Freshman
 Noelia Sofia Macagno, 14, Freshman
 Pablo A. Pizzurno Institute, Hernando, Cordoba, Argentina
 T: Maria T. Dellamaggiore
 T: Maria Teresa Dellamaggiore
- BE310T How Reaction Time Differs With Age**
 Sanin Ahmed Adnan, 15, Sophomore
 Robert Benjamin Cobbins, 16, Sophomore
 Oakton High School, Vienna, Virginia
 T: Cheri Faley
- BE311T Cross Cultural Descriptive Analysis—Gender Stereotyping Between Children in Long Island and the Czech Republic**
 # Jon Louis Calluzzo, 18, Senior
 # Edward Kim, 18, Senior
 Manhasset Junior-Senior High School, Manhasset, New York
 T: Peter Guastella
- BE312T New Challenge**
 Bernardita Maria Julieta Portillo, 18, Senior
 Emiliano Luis Esmoris, 16, Senior
 Luciana Betina Beatriz Romero, 20, Senior
 Escuela de Educacion Media No. 2, Zarate, Buenos Aires, Argentina
 T: Gustavo G. Coria
- BE313T Assessing High School Students' Knowledge About Breast Cancer Through a Symposium**
 Jared Avrum Frankel, 17, Junior
 Mitchell Slade Kase, 17, Junior
 Plainview-Old Bethpage John F. Kennedy High School, Plainview, New York
 T: Mary Lou O'Donnell
- BE314T Too Old or Too Young to Drive? Survey on Driving Restrictions**
 D. Tamotsu Iwaishi, Jr., 17, Junior
 Desiree Luana Kay, 17, Senior
 Kristin Noelani Yukiko Kihune, 17, Senior
 Kamehameha Secondary School, Honolulu, Hawaii
 T: Larry Mordon
 T: Sandy Young
- BE315T What Do Adults Think About Animal Use in Laboratories?**
 Jose Johel Monge, 17, Junior
 Marimar Rivera, 16, Junior
 Colegio San Antonio, Rio Piedras, Puerto Rico
 T: Elsie G. Allende
- BE316T Multiplying With Melody: Four-Year Study**
 Jessica Marie Oeth, 16, Junior
 Jessica Lauren Grillo, 17, Junior
 Margaret Elizabeth Wimmer, 17, Junior
 Ogden High School, Ogden, Iowa
 T: John Emerson
- BE317T New Vacuum Injection Technique on the Inhibition of Tyrosine Hydroxylase in *Drosophila melanogaster***
 Thomas Fleming Kollar, 18, Senior
 Benjamin Alan Oyler, 17, Junior
 Jeremy Patrick Stovall, 16, Junior
 Knoxville Catholic High School, Knoxville, Tennessee
 T: Lisa Reece
- BE318T South Transandean Railroad Project and its Regional Economic Impact**
 Luciano Sebastian Simonelli, 16, Senior
 Maria Constanza Aquino, 16, Senior
 Escuela de Educacion Media No. 5, Punta Alta, Buenos Aires, Argentina
 T: Maria I. Basile
- BE319T Twin Telepathy—Truth or Tale?**
 Rachel Renae Hicks, 15, Freshman
 Megan Marjerie Hicks, 15, Freshman
 Champlin Park High School, Champlin, Minnesota
 T: Randal Smasal
- BI301T Determinants of Soggy Cereal**
 Crystal Rose Hostetter, 16, Sophomore
 Jessica Lynn Cordingly, 16, Sophomore
 Hot Springs County High School, Thermopolis, Wyoming
 T: Jeb Schenck
- BI302T Biological and Chemical Evaluation of Novel Synthetic Mechanisms Employed in the Treatment of Excess Iron**
 # Allison Joy Ferber, 17, Junior
 Lesley Ann Jamieson, 17, Junior
 Lake Highland Preparatory School, Orlando, Florida
 T: Judith F. Legault
- BI303T Method of Cancer Detection—Upregulation of Cyclin D1 in Cancer Cells**
 # Sohail Reza Ahmed, 18, Senior
 Hans Orejuela, 17, Senior
 Midwood High School at Brooklyn College, Brooklyn, New York
 T: Jay Touger
- BI304T Mitochondrial Genome of Zebrafish, *Danio rerio***
 Dana Eve Berkowitz, 16, Junior
 Francesca Marie Pignataro, 16, Junior
 Rachel Merideth Shoichet, 16, Junior
 Plainview-Old Bethpage John F. Kennedy High School, Plainview, New York
 T: Mary-Lou O'Donnell
- BI305T Determining Effective Method of dsRNA Administration in *Drosophila melanogaster***
 Eugenia Tsai, 16, Junior
 Una Au, 16, Junior
 Manhasset Junior-Senior High School, Manhasset, New York
 T: Peter Guastella

- BI306T Repellent Property of Citric Peels and Petals Against Mosquitoes**
Carlos Alberto Davila, 16, Junior
Ricardo Javier Davila, 17, Senior
Colegio De La Salle, Bayamon, Puerto Rico
T: Maritza Rodriguez de Vega
- BI307T Are We Able to Inhibit Infection of Human Cell Lines by HRV?**
Ronald Valentine Williams, 17, Junior
Jennifer Lynn Wilwert, 17, Junior
Cardinal Ohara High School, Springfield, Pennsylvania
T: Katherine Lansing
- BI308T Cereal Killer?**
Elizabeth Crawford, 18, Senior
Conor James Higgins, 17, Senior
Angela Michelle Williams, 18, Senior
Hazelwood Integrated College, Belfast, Northern Ireland
T: Dr. Seamus Quinn
- BI309T Size and Metabolism**
Julie Ann Buffington, 17, Senior
Franco Alberto Moreno, 18, Senior
April Ann Salcido, 18, Senior
Homer Hanna High School, Brownsville, Texas
T: Nelda Rogers
- BO301T Effect of Fractionated Ionizing Radiation—Non-Lethal Cell Damage and Electromagnetic Fields on Arabidopsis**
Lauren C. Ball, 17, Junior
Kathleen E. MacMillan, 17, Junior
Lake Brantley High School, Altamonte Springs, Florida
T: Susan N. Behel
- BO302T What are the Rates of Cadmium Absorption in Corn Plants?**
Erin Belinda Enright, 16, Sophomore
Janelle Lorna Booth, 16, Sophomore
Timber Lake High School, Timber Lake, South Dakota
T: Gregory L. Garon
- BO303T Allelopathic Effects of Selected Weed Exudates on Germination and Early Growth of *Triticum aestivum* in Northern Toole County, Montana**
Jeremy John Brimhall, 17, Senior
Marshall Cole Overcast, 17, Junior
North Toole County High School, Sunburst, Montana
T: Lawrence Fauque
- BO304T Used the Best for Less—Turn Garbage Into Composed Fertilizer**
Theresa Kerry-Ann Williamson, 17, Junior
Barrington George Sinclair, 18, Junior
Omar Oneil Orridge, 19, Senior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- BO305T Weeds in Our Environment**
Yanique Kamiesha Hall, 17, Junior
Davian Barton, 20, Senior
Kevon Orin Simms, 19, Junior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- BO306T Effects of Anesthetics on Channel Systems in Soybean Plants: Two-Year Study**
Travis Michael Beamish, 18, Senior
Avaleigh Nora Milne, 18, Senior
Kingston Collegiate & Vocational Institute, Kingston, Ontario, Canada
T: Chris VanLuyen
- BO307T Histochemical Tests and Antibacterial Effect of Oak-Leaf Fern (*Drynaria quercifolia* (Linn.) J.Sm) Extracts**
Osmund Nino Beltran Amoroso, 17, Sophomore
Ray Ian Chris Yago Oco, 17, Sophomore
Leo Marconi Reserva Carrillo, 16, Sophomore
T: Luzminda Gurra
- BO308T Characteristics of Corn That Aid in Tolerance to Ultra-Violet Radiation**
Edwin B. Schultz, 18, Senior
Richie Fredrick Weers, 18, Senior
Midland High School, Varna, Illinois
T: Eric Rittenhouse
- BO309T Environmental Stresses on Vegetables**
Serena Zibetti, 14, Freshman
Christina Rachael Martinez, 15, Freshman
Provo High School, Provo, Utah
T: Ryan Rassmussen
- BO310T Transmission of Phyto Pathogens by Insect Vectors**
Sherri Amelia Hook, 18, Senior
Bao-Huong Thi Nguyen, 17, Senior
John B. Connally High School, Austin, Texas
T: Pat Merkord
- BO311T Possible Anti-Viral Properties of *Azadirachta indica* in Suppressing Tobacco Mosaic Virus**
LaTonya Monique Little, 17, Junior
Candace D. Tubbs, 16, Junior
Yazoo City High School, Yazoo City, Mississippi
T: Debbie Raddin
- BO312T Hortensia—pH Indicator**
Daniel Matias Varela Frias, 17, Senior
Christian Pablo Claveria Grondona, 17, Senior
Escuela de Comercio N1, Gral. Manuel Belgrano, Tucuman, S.M. de Tucuman, Argentina
T: Jorge Eduardo Stegmayer
- CH301T Are Hazardous Levels of Perchloroethyle Found in Your Dry-Cleaned Clothing?**
Mary H. Orwig, 16, Sophomore
Eric M. Banister, 15, Sophomore
Houston County High School, Warner Robins, Georgia
T: Laura Byrd
- CH303T Diverse Reactions of Singlet Oxygen With Various Metal Thiulates**
Timothy Allen Dong, 15, Sophomore
Annie Giang, 15, Sophomore
Debbie Chu, 16, Sophomore
Alhambra High School, Alhambra, California
T: Duane Nichols
- CH304T Determination of Reactivity Ratios for Polyacrylate Elastomers**
Clayton Michael Smith, 16, Junior
Wei Deng, 17, Junior
duPont Manual Magnet High School, Louisville, Kentucky
T: Glenn Zwanzig
- CH305T Ash Is Not Trash**
Kirkland Ainsworth Clarke, 16, Senior
Carole Sususaye Barnaby, 18, Senior
Kerry Ann Shamaria Parquharson, 18, Senior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- CH306T Vitamin C—Here Today, Gone Tomorrow, Or Is It?**
Kristi B. Meaders, 15, Freshman
Kathleen Dawn Wilkes, 14, Freshman
North Ogden Junior High School, Ogden, Utah
T: Bob Lane
- CH307T Synthesis of Novel Taxanes as Potent New MDR Reversal Agents for Cancer Chemotherapy**
Kenneth Hung, 17, Senior
Punita Bhansali, 17, Senior
Kings Park High School, Kings Park, New York
T: Jane Schoch
Half Hollow Hills High School East, Dix Hills, New York
T: Raymond McGraime
- CH308T Production of a Shampoo Base on Extracts From *Gliricidia sepium***
Alejandra Fernandez-Sanchez, 18, Junior
Maria Jesus Solis-Duran, 17, Junior
Graciela Oguilve-Villalobos, 17, Junior
Costarican Scientist High School, Montes de Oca, Costa Rica
T: Eduardo Minero-Torres
- CS302T EMAS System to Assist Medical Staff During an Emergency**
Timothy R. Thomas, 18, Senior
Naman A. Shah, 15, Freshman
Palm Bay High School, Melbourne, Florida
T: Michael O'Donnell

- CS303T Hybrid Text to Speech 2000: Phase II**
Joseph E. Pechter, 18, Senior
William H. Pechter, 18, Senior
Saint Edward's School, Vero Beach, Florida
T: Thomas McCarthy
- CS304T Cyber 2000**
Carlos Roisenuit Esquivel, 16, Sophomore
Christian Febres, 16, Sophomore
Club of Science Albert Einstein, Lima, Peru
T: Moises E. Guerra
- CS305T Lucifer's Hammer—Computer Simulation of Asteroid Trajectories**
Derek Thomas Mehlhorn, 17, Senior
Adrienne Renee Upah, 18, Senior
William Harding Pearl, 18, Senior
Albuquerque Academy, Albuquerque, New Mexico
T: Jim Mims
- CS306T Pathfinding Through Height-Fields**
Tyler James Laing, 18, Senior
Ryan A. Merrill, 18, Senior
Roy High School, Roy, Utah
T: Dale J. Slade
- CS307T Molecular Modeling Workbench**
Ivan V. Sidorov, 16, Junior
Fatima M. Keshtova, 17, Junior
Kirill Dmitrievitch Zakharenko, 16, Junior
Lyceum of Information Technologies, #1533, Moscow, Russia
T: Alexei A. Tcherkasov
- CS308T MTI-Laser Transmission Module**
Gilson Hoffmeister, 20, Senior
Guilherme Fredrico Weidle Jr., 18, Senior
Jonatas Mattes, 19, Senior
Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, RS, Brasil
T: Luis Alberto Maccarini
- EA301T Wavelet Analysis of Seismological Data**
James Philip McKenna, 17, Junior
Clare Marie O'Connell, 16, Junior
Loreto College, County Derry, IRELAND
T: Brian McKenna
- EA302T Universe's Contents—Dark Matter**
Freddy Raynard Funes, 18, Senior
Hanio Jose Zuniga, 18, Senior
David Mercuri, 18, Senior
Miami Beach Senior High School, Miami Beach, Florida
T: Allyn Pond
- EA303T Strontium Isotope Dating of SM590**
Sharmini Elena Pitter, 15, Freshman
Saira Lyn Anderson, 15, Freshman
Lawton Chiles High School, Tallahassee, Florida
T: Eugenia Traylor
- EA304T Determination of Distance to Dwarf Galaxy by Three Brightest Stars**
Vyacheslav S. Zhabin, 17, Junior
Dmitry N. Solovyov, 15, Sophomore
School #34, Ryazan, Russia
T: Andrey K. Murtazov
Gymnasium #1, Ghukowsky, Russia
- EA305T Comparing Small Volcanic Edifices on Venus and Undersea Volcanoes**
Chandler Elizabeth Hatton, 16, Sophomore
Jordan E. Wirfs-Brock, 15, Sophomore
Oregon Episcopal School, Portland, Oregon
T: Rosa Hemphil
- EA306T Identifying Unknown Solar Absorption Lines**
Todd Ryan Faner, 18, Senior
Regan Anna Marie Wilson, 17, Junior
Grosse Pointe North High School, Grosse Pointe, Michigan
T: Ardis Maciolek
- EA307T Effects of Land Use on the Geomorphology and Water Quality of North Burnt Fork Creek: Two-Year Study**
Cassandra Lynn Koerner, 16, Junior
Lynessa Kellogg, 16, Junior
Stevensville High School, Stevensville, Montana
T: George Wasser
- EN301T Strength of Mechanically-Stabilized Walls**
Matthew T. Zaleski, 17, Junior
Arnold Saha, 17, Senior
Bellevue High School, Bellevue, Florida
T: Holly Cahill
- EN302T Jet Engine Mechanics: Two-Year Study**
John Timothy Cook, 18, Senior
Erin Marie Hanna, 17, Senior
Americas High School, El Paso, Texas
T: Sandra Reinhardt
- EN303T Random Orientations of Wires in Composites**
Levi Seth Klausner, 15, Freshman
Luke William Klausner, 17, Junior
Woodlin High School, Woodrow, Colorado
T: Nancy Gettman
- EN304T Don't Rock the Boat: Phase II**
Barrett Christopher Boutte, 17, Junior
Julie Michelle Roy, 17, Junior
Catholic High School, New Iberia, Louisiana
T: Donald Voorhies
- EN305T Need for Speed: Two-Year Study**
Katherine LeAnn Barkey, 18, Senior
Rebecca Lynn Hayman, 17, Senior
Lincoln Park Academy, Fort Pierce, Florida
T: Judy Megaw
- EN306T Gyroscopic Rocket Stabilization**
Brian T. Wetherald, 14, Freshman
Grant Craig Livingston, 15, Freshman
Alamogordo Senior High School, Alamogordo, New Mexico
T: Robert C. Tinguely
- EN307T More Layers, More Strength?**
Staci Kristen Pack, 15, Sophomore
Lesley Danielle Grimes, 15, Sophomore
Drew Central High School, Monticello, Arkansas
T: Dennis Thurman
- EN308T Visualized Piano Tuner Using the Modified Even-Tempered Tuning System**
Song Li, 18, Senior
Yu Zhang, 18, Senior
Xiaoning Meng, 18, Senior
The First Middle School Attached to Beijing Normal Univ., Beijing, China
T: Deqing Wang
Beijing Electronic Industry School, Beijing, China
T: Baoquan Kang
- EN309T Design and Development of Temporary Shelter for Use in a Disaster Situation**
Mark D. Gebel, 17, Junior
David Strauss, 15, Sophomore
Prameet H. Shah, 17, Junior
Smithtown High School, Smithtown, New York
T: Elaine Champey
- EN310T Shake, Rattle and Roll**
Jason Lee Garza, 15, Freshman
Dustin James Krnavek, 15, Freshman
Banquete High School, Banquete, Texas
T: Michael Reichle
- EN311T Active Solar Tracker—Cadmium Sulfide Photo Conductive Cells Sensor Tracking System**
Paul James Sagona, 17, Junior
Bevin Lorraine Hutcheson, 16, Senior
Crestwood High School, Sumter, South Carolina
T: Robert Barth

- EN312T Millennium Refrigerator**
Keith Lam, 17, Senior
Marbury Lau, 17, Senior
Redeemer Baptist School, Sydney, NSW, Australia
T: Stuart M. Garth
- EN313T Hidropolis**
Emiliano Morcos, 17, Senior
Leandro Javier Manzano, 17, Senior
Eduardo Sebastian Giner, 17, Senior
Escuela Normal Gral. Toribio de Luzuriaga, Tunuyan, Mendoza, Argentina
T: Hugo Cirolia
- EN314T Optimization of a Marine Propeller for Maximum Thrust**
Travis Scott De Jong, 18, Senior
Matthew David Ruter, 18, Senior
Unity Christian High School, Orange City, Iowa
T: Mark Kauk
- EN315T Stepper Lineal Motor**
Gabriel Dal Pietro, 18, Senior
Nestor Chocobar, 19, Senior
Escuela Provincial de Educacion Tecnina No.8, Neuguen, Neuguen, Argentina
T: Carlos Horacio Killy
- EN316T Electromagnetic Propulsion— Accelerating to a Changing World**
Rogelio Rene Sanchez, 17, Senior
Arturo Palacios, Jr., 18, Senior
Christopher Erick Rios, 18, Senior
J.W. Nixon High School, Laredo, Texas
T: Luis Manuel Villarreal
- EN317T Achieving Optimal Transistor Frequency Through Auxiliary Liquid Cooling**
Andrew Ricard Lague, 17, Senior
Nathan Walter Wulf, 18, Senior
Hilton Head High School, Hilton Head Island, South Carolina
T: N. Kathryn Howard
- EN318T Study of Radio Control by Means of Spark Discharge**
Daisuke Kazama, 16, Sophomore
Akihiro Kanda, 16, Sophomore
Takayuki Shibata, 16, Sophomore
Chiba-Kenritsu Funabashi High School, Funabashi-City, Chiba-Ken, Japan
T: Mitsuharu Oyama
- EV301T Perilous Pilings—Minimizing Leaching of Copper Oxide From CCA-Treated Marine Pilings: Two-Year Study**
Jennifer Ilene Johns, 14, Freshman
Jonathan Breaux Taylor, 14, Freshman
Fort Myers High School, Fort Myers, Florida
T: Michele Richardson
- EV302T It's Not Easy Being Green**
Lazaro Gonzales, Jr., 18, Senior
Sarah Beth Miller, 18, Senior
Muskogee High School, Muskogee, Oklahoma
T: Karla Ford
- EV303T Oil Spill in a Jar**
Sarah Brittany Bounds, 14, Freshman
Carli Anne Resler, 14, Freshman
Mercy Cross High School, Biloxi, Mississippi
T: Deborah Worrel
- EV304T Fertilizing Plants to Death**
Ashley Rochelle Chapin, 16, Sophomore
Kendal Wallis Bauman, 15, Sophomore
Pawnee High School, Grover, Colorado
T: Carrie Erickson
- EV305T Design and Development of In-Line Chitin Filter for Heavy Metals**
Geoffrey Chua Loy, 18, Senior
John Paul Rowan, 18, Senior
Neil Huguenin Victor, 18, Senior
Savannah Country Day School, Savannah, Georgia
T: Scott Elliott
- EV306T Phytoremediation—CU in the Garden**
Kevin Huang, 16, Sophomore
Daniel Jim Wang, 16, Sophomore
Jasper High School, Plano, Texas
T: Angela Kollmann
- EV307T Shellac Industry Waste as a Chelating Agent for Uptake of Micronutrients by Plants**
Sameep Agrawal, 16, Junior
Sarvesh Rathore, 16, Junior
Christ Church Boys' Senior Secondary School, Jabalpur, Madhya Pradesh, India
T: Sanjay D. Judah
- EV308T Beginning of a Native Species Extinction, Zebra Mussels vs. Freshwater Mussels: Phase II**
Alaina Joan Oas, 18, Senior
Noelle Joan Oas, 15, Freshman
Winona Senior High School, Winona, Minnesota
T: Jerry Foster
- EV309T Effect of Anthraquinone on Sulfide Biooxidation by Nitrate**
Andrew R. Harshman, 17, Senior
Christopher David Hunniford, 17, Junior
Sarasota High School, Sarasota, Florida
T: James P. Harshman
- EV310T Baseline Technique for Detecting Quantities of Chemicals Within Environmental Tobacco Smoke: Phase V**
Justin James Leonard, 17, Junior
Michelle Leigh Leonard, 17, Junior
Salisbury High School, Salisbury, North Carolina
T: Bill Lee
- EV311T Purification Research of Air Pollution in Air Conditioned Room**
Juemin Zhu, 18, Senior
Hao Wang, 17, Senior
Yongrong Hou, 18, Senior
No. 2 Secondary School Attached to East China Normal Univ., Shanghai, China
T: Peiyu Ye
- EV312T South Manchester Coastal Resources**
Antionette Shenah N. Reid, 18, Senior
Rhonda Marcello Mahon, 20, Senior
Tanisha Alicia Albert, 19, Senior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- EV313T Mulching for Survival**
Marie Cassandra Anderson, 19, Senior
Karen Diana Turner, 20, Senior
Kernan Monique Wilson, 18, Senior
Knox Community College, Clarendon, Jamaica
T: Errol C. Miller
- EV314T Recycling Drink Cartons**
Sarah Elizabeth Broadbent, 15, Sophomore
Sofie Gravers Jacobsen, 17, Junior
European School Bergen, Bergen, NH, Netherlands
T: David J. Broadbent
- EV315T Strength in Recycled Fiber: Two-Year Study**
Karen Renee Hammonds, 16, Junior
Lindsey Kay Stadler, 17, Junior
Minerva High School, Minerva, Ohio
T: Molly Winters
- EV316T Comparison of the Management of Landfills of Humacao and Juncos and Community Opinion**
Vivian M. Lebron, 14, Freshman
Sonaris Molina, 14, Freshman
Juan Ponce De Leon High School, Humacao, Puerto Rico
T: Nelson V. Reyes
- EV317T Anatomofunctional Study of the Bivalves Species *Prothotaca taca* and *Venus antiqua* Biological Importance**
Loreto Elizabeth Marro, 14, Freshman
Carolina Constanza Salazar, 14, Freshman
Colegio de la Salle de Temuco, Temuco, Novena Region, Chile
T: Maria Angelica Baier

- EV318T Telematic Village**
Matteo Pastorino, 19, Senior
Egle Moriggia, 20, Senior
Gabriele Moncalvo, 20, Senior
P.L. Nervi, Alessandria, Italy
T: Gianfranco Lenti
- EV319T Bio-Augmentation of *Pseudomonas sp.* in Various Soil Profiles: Two-Year Study**
Krisda Chaiyachati, 17, Junior
Emem Inyang Adolf, 17, Junior
Columbia High School, Decatur, Georgia
T: Francis D. Copeland
- EV320T Environmental Effects of Chemicals on Sea Urchin Embryos: Three-Year Study**
Smith Sirisakorn, 17, Senior
Heng Sao Tea, 17, Senior
California Academy of Math & Science, Carson, California
T: Thomas Jett
T: Carrie Wolfe
- EV321T Ability of Ryegrass to Effectively Decontaminate Soil From Strong pH Levels of Acid Rain**
Sandra Lynn Oldaker, 18, Senior
Christina Louise Gwin, 18, Senior
Amador Valley High School, Pleasanton, California
T: Eric Thiel
- EV322T Efficiency of Citric Acid as a Larvicide for the Mosquito *Aedes aegypti***
Reinaldo Luis Figueroa, 18, Senior
Luis Angel Seda, 17, Senior
Glorimar Molina, 18, Senior
University Gardens High School, San Juan, Puerto Rico
T: Maria E. Andino
- EV323T Soybean Fuel—Alternative to Marine Life and Terrestrial Protection**
Bernice Acevedo Marcano, 15, Sophomore
Veronica Vero Diaz, 16, Sophomore
Colegio La Piedad, Carolina, Puerto Rico
T: Pedro J. Martinez-Torres
- EV324T Determining Suitability of Leeward O'ahu Streams for the Reintroduction of O'opu Freshwater Gobi**
Reuban Arreola-Sotero, 17, Junior
Jonathan Laurence Valdez, 15, Sophomore
Waianae High School, Waianae, Hawaii
T: Linda Gallano
- EV325T Nitrate Use in Activated Sludge Waste Water Treatment Plants Under Oxygen Depletion**
Bernal A. Hernandez, 18, Junior
Horacio Isaac Araya, 16, Junior
Greivin M. Perez, 17, Junior
Colegio Cientifico Costarricense Sede San Carlos, San Carlos, Alajuela, Costa Rica
T: Adolfo Chaves
- EV326T Investigation of the Niche Separation of Species of Rabbitfish at Lizard Island**
Polly S. Fraser, 18, Senior
Megann Gabrielle Harbaugh, 17, Junior
Mecosta Osceola Math, Science and Technology Center, Big Rapids, Michigan
T: Matt Williams
- EV327T Automobile Oil Spills on the Marine Ecosystems**
Leny Virginia Bolivar, 15, Sophomore
Zully Viviana Moreno, 14, Sophomore
Instituto Educacional Juan XXIII, Valencia, Carabobo, Venezuela
T: Delys Gomez
- GN301T Effect of Music on Short-Term Memory of Alzheimer's Patients**
Victoria Katherine Mitchell, 16, Sophomore
Rachel Elizabeth Adams, 16, Sophomore
Bartlesville High School, Bartlesville, Oklahoma
T: Colleen G. Bennett
- GN302T Effect of Dietary Antioxidant Supplements on Behavioral and Biochemical Changes in C-57 Black 6 Mice**
Kathleen Elizabeth Rutter, 18, Senior
Nalani Adrienne Fraser, 17, Senior
Yorktown High School, Arlington, Virginia
T: Michael Zito
- GN303T Knowledge and Possible Behavior of Elderly People Toward HIV**
Ramon Esteban Martinez - Rossario, 17, Senior
Jose M. Del Valle - De Jesus, 19, Senior
Dolaida Rivera, 17, Senior
Carlos Escobar Lopez, Loiza, Puerto Rico
T: Carmen L. Ortiz
- MA301T Rocket Mathematics**
Albert Adam Van Etten, 16, Sophomore
Vincent Michael Pugliese, 15, Sophomore
Steilacoom Senior High School, Steilacoom, Washington
T: Robert Mize
- MA302T Investigations Into Pascal's Triangle**
Peter Taylor, 15, Sophomore
Shane Michael Browne, 15, Freshman
Saint Kilians Community School, Co. Wicklow, Ireland
T: Patrick Quill
- MA303T Method for Raising Real Numbers to a Rational Power and its Computer Implementation**
Siarhei Markouski, 15, Sophomore
Ilya Malakhovsky, 15, Sophomore
School N41, Minsk, Belarus
T: Tatiana Gourianova
- MA304T Ulam Numbers—Enigma for Our Times**
Elvin Miguel Concepcion, 17, Senior
Milton Ricardo Miranda, 16, Junior
Eladio Tirado Lopez, Aguada, Puerto Rico
T: Hilda Rosa
- MA305T Mathematics of Art**
Yousuf Z. Abbasi, 18, Senior
Soroush H. Morshedi, 17, Senior
Payam Rashidi, 18, Senior
Little Rock Hall High School, Little Rock, Arkansas
T: Dennis Brant
- MA306T Stochastic Models of HIV/T Cell Analyzing Chemotherapy**
Joakim Kristofer Vinberg, 18, Senior
Beeneet Kothari, 17, Senior
Manhasset Junior-Senior High School, Manhasset, New York
T: Peter Guastella
Half Hollow Hills High School West, Dix Hills, New York
T: Alan Blayne
- MA307T Recycling Algorithm**
Jordan Issac Rubinstein, 17, Junior
Justin Georgekutty, 17, Junior
Roslyn High School, Roslyn Heights, New York
T: Farrel Powsner
- MA308T Perfect Triangles**
Marta Gonzalez, 17, Junior
Karla Michelle Palermo, 16, Junior
Francisco Zayas Santana High School, Villalba, Puerto Rico
T: Pedro J. Berrias
- MA309T New Technique to Determine the General Term of a Sequence Based on Finite Ratios**
Joan Vazquez, 17, Senior
Alejandro Quinones, 18, Senior
Aurea E. Quiles High School, Guanica, Puerto Rico
T: Henry Hicks
- MA310T Cellular Automata—Cyber Creepy Crawlies**
Ian Levi Nelson, 18, Senior
Dagny Lauren Looper, 18, Senior
Arkansas School of Mathematics & Sciences, Hot Springs, Arkansas
T: Bruce E. Turkal
- MA311T Fun with Binary Numbers**
Janet Soltero-Lugo, 17, Senior
Angel Jose Olivera-Toro, 17, Senior
University Gardens High School, San Juan, Puerto Rico
T: Loyda Rodriguez

- ME301T Aromatherapy as a Stimulant for Concentration When Answering a Test**
Josiris D. Rodriguez-Perez, 16, Junior
Karina Jove-Jimenez, 16, Junior
Hogar Colegio La Milagrosa, Arecibo, Puerto Rico
T: Yadira Gonzalez Colon
- ME302T Skeletal Muscle Cells—Competent Model Systems for Neurotrophic Research: Two-Year Study**
Seetharam Chowdary Chadalavada, 18, Senior
Melinda Mae Sloma, 17, Senior
Battle Creek Area Math & Science Center,
Battle Creek, Michigan
T: John M. Spitsbergen
- ME303T What Do You Really Pass With Your Pass?**
Jody Anne Garry, 18, Senior
Stacy Marie Vilhauer, 18, Senior
Mitchell High School, Mitchell, South Dakota
T: Judy Vondruska
- ME304T Regulation of Bone Marrow Cells by Activin A and Inhibin**
Margaret Diane Depper, 18, Senior
Laci Anne Kazanovicz, 18, Senior
Arkansas School of Mathematics & Sciences,
Hot Springs, Arkansas
T: Shane Willbanks
- ME305T Caution—Objects May Be Closer Than They Appear**
Devin Randall Harper, 15, Freshman
Tyler Jordan Morehart, 15, Freshman
Darby Junior High School, Fort Smith, Arkansas
T: Shane Mullens
- ME306T Do Antibacterial Products Create More Resistant Strains of *E. coli*?**
Christine Marie Burns, 18, Senior
Analiese McIntyre Kornely, 17, Senior
West Potomac High School, Alexandria, Virginia
T: Susan Piskar
- ME307T How Safe is Your Salsa? Adaptive Acidification Tolerance in Enteric Bacteria and its Prevention: Phase II**
Nicole Marie Merkord, 17, Senior
Jessica Lyn VanAntwerp, 17, Senior
John B. Connally High School, Austin, Texas
T: Patricia Merkord
- ME308T Bacterial Risk Factor in the Development of Infant Caries**
Lydia del Carmen Ocasio, 16, Sophomore
Isabel Cristina Acevedo, 15, Sophomore
JoAnn Marie Cabrera, 15, Sophomore
Colegio Marista, Guaynabo, Puerto Rico
T: Isabel Perez
- ME309T To Buff or Not to Buff—Does *Lactobacillus acidophilus* Maintain pH?**
Melynda Dianne Scriven, 17, Senior
Catherine C. Dozier, 18, Senior
Katrina Lynette Robinson, 17, Senior
Gwynn Park High School, Brandywine, Maryland
T: Linda Campbell
- ME310T Ultrasound Today—Accuracy of Real-Time Ultrasound Machine**
Misty Dawn Martin, 17, Junior
Ashley Brooke McQueen, 18, Senior
Mason High School, Mason, Texas
T: Bonnie Schmidt
- ME311T How Does the Medicine Help You?**
Margo Marie Oliver, 17, Senior
Margaret Diantha Ain, 18, Senior
Las Vegas Academy High School, Las Vegas, Nevada
T: Edward A. Baciak
- ME312T Do the Components of a Country's Diet Affect its Rate of Breast Cancer?**
Allyson T. Ponssock, 17, Junior
Rachel Lynn Troyer, 16, Junior
Lauren Elizabeth McQuiston, 17, Junior
Saint Joseph's Academy, Baton Rouge, Louisiana
T: Susan Messina
- ME313T Cornsilk as an Alternative Medicine for Curing Diabetes Mellitus**
Ahmad Syaifuddin, 19, Senior
Melissa Gracia, 16, Junior
Bastian Wiandany, 16, Junior
SMU 1 Kudus Jl., Kudus, Kudas Jawa Tengah, Indonesia
- ME314T Sir, Sir...Can You Hear Me?**
Patricio Alejandro Breczko, 18, Senior
Luis Fernando Viceute, 18, Senior
Franco Martin Oroquieta, 17, Senior
Instituto Padre Juan Muzio, Trelew, Chubut, Argentina
T: Adrian O. Baraibar
- ME315T Ratstail Plantain as a Natural Buffer: Phase III**
Angelica M Guzman, 17, Senior
Jaleska Aponte, 17, Senior
Luis Munoz Marin High School, Barranquitas, Puerto Rico
- MI301T Effects of Tetracycline on Direct-Fed Microbials**
Bridgette Kathleen Corson, 18, Senior
Amanda Gail Moniz, 18, Senior
Moore High School, Moore, Oklahoma
T: Gina Randolph
- MI302T Natural Antibiotics—Effects of Five Different Herbal Substances on *Serratia marsecens* and *Staph aureus***
Emily Claire Letourneau, 14, Freshman
Anna Mary Bishop, 15, Freshman
Como Park Senior High School, St Paul, Minnesota
T: Arthur Payne
Central High School, St Paul, Minnesota
- MI303T DNA Analysis of Calanoids in the Ruby Mountain Lakes**
Lynsie Annette Paul, 18, Senior
Brandi Natasha Cobb, 18, Senior
Carlin High School, Carlin, Nevada
T: Steve Feasel
- MI304T Effect of Air-Exposure Time on the Antifungal Properties of Garlic Juice: Two-Year Study**
Sarah Cooperrider Moore, 16, Sophomore
Lia Caroline Carpeneti, 16, Sophomore
Juneau-Douglas High School, Juneau, Alaska
T: Erik Lundquist
- MI305T Toxicity in Potato Salad**
Icha Marie Benitaz, 17, Senior
Lournet Martinez, 17, Senior
Dr. Juan J. Osuna, Caguas, Puerto Rico
T: Maria T. Crespo
- MI306T Toxicogenic Effects of Microbial Growth in a Secondary School Building Due to Inadequate Air Control**
Maegan Latrice Mitchell, 17, Junior
Anthony Schwartz, 17, Senior
Octavia Jackson, 17, Junior
Murrah High School, Jackson, Mississippi
T: Cindy K. Cook
- MI307T Effects of Penicillin on *Staphylococcus aureus***
Stephanie Joan West, 15, Sophomore
Melissa Leann Lossing, 16, Sophomore
Outlook High School, Outlook, Montana
T: Mike Flamm
- MI308T Is This Biocide Biosafe? Two-Year Study**
Sarah May Charlton, 18, Senior
Katherine Bo Gunst, 17, Senior
University Of Toronto Schools, Toronto, Canada
T: Meg O'Mahony
- MI309T Control of Bacteriophage Lambda Replication in an *E. coli* Strain Lacking Histone-Like Protein Hu**
Xiaoyin Chen, 13, Junior
Zhou Fang, 13, Junior
Beijing No. 8 High School, Beijing, China
T: Nianzu Cheng
T: Li Huang
- MI310T Effects of Smoke on Throat Flora**
Luke V. Yohe, 16, Junior
Trevor Dru Nash-Keller, 16, Sophomore
Selby High School, Selby, South Dakota
T: Gary Fahmi

- MI311T Cyro-Bacteria**
Esteban Adrian Mendoza, 17, Senior
Mario Ivan Mulc, 16, Senior
Javier Francisco Lizundia, 16, Senior
Instituto Leonardo Murialdo, Guaymallen, Mendoza, Argentina
T: Edgardo N. Allendes
- MI312T Characterization of *Xanthomonas axonopodis* pv. *dieffenbachiae***
Paula Diez Castilho, 15, Sophomore
Lara Abou Ezzedine, 15, Sophomore
Escola Americana de Campinas, Campinas, Sao Paulo, Brasil
T: Vivian H. Schlesinger
- MI313T Pasteurized and Unpasteurized Milk—What's the Difference?**
Kristin Dawn Code, 16, Junior
Kathryn Camille Haupt, 17, Junior
Red Mountain High School, Mesa, Arizona
T: Lorelei Wood
- MI314T Search, Discovery and Characterization of a Lytic Bacteriophage Which Infects *E. coli***
Heather M. Menning, 16, Sophomore
Julie Renee Garon, 16, Sophomore
Hamilton High School, Hamilton, Montana
T: Marie Antonioli
- MI315T Antibacterial Properties of Turmeric**
Nasha Nijhawan, 16, Senior
Ann Marie McKenna, 17, Senior
University Of Toronto Schools, Toronto, Canada
T: Meg O'Mahoney
- MI316T What's in Your Bottled Water?**
Rebecca Ann Taylor, 15, Sophomore
Shelly Kate Collins, 15, Sophomore
John S. Davidson Fine Arts School, Augusta, Georgia
T: Barbara Howerton
- PH301T Reality vs. Virtuality**
Alan Jerry Huang, 15, Sophomore
Darius C Wu, 15, Sophomore
Shepton Freshman High School, Plano, Texas
T: Nadine Harris
- PH302T Frequency and Laser-Based Measuring Instrument**
Ming Fung Yong, 17, Junior
Wee Siong Chong, 18, Junior
Chiing Sung Lee, 17, Junior
SMB Chung Hua Miri, Miri, Sarawak, Malaysia
T: Khaw Ai Guat
- PH303T Which Substance Produces the Most Radioactive Particles?**
Josh Mark Andrews, 15, Freshman
Chase Taylor Masters, 14, Freshman
Henry County High School, McDonough, Georgia
T: Rachel E. Foster
- PH304T Seats on a Bus Bounce Up and Down—Difference in 3-D Acceleration in Various Seats on a Given School Bus**
Matthew Alan Josefy, 17, Senior
Justin Lee Gregg, 18, Senior
Midland High School, Midland, Texas
T: Charles Bell
- PH305T Exciting Electrons**
Shaina Sophie Potts, 16, Junior
Vanessa J. Fleming, 17, Senior
Georgiana Bruce Kirby Prep. School, Santa Cruz, California
- ZO301T Colored Light at the End of the Tunnel**
Jamie Michelle Johnson, 16, Sophomore
Jessica Lynn McAlister, 16, Sophomore
William J. Palmer High School, Colorado Springs, Colorado
T: Brad Bogard
- ZO302T Studies on Resistance in *Varroa jacobsoni* to Tau-Fluvalinate**
Emily L. Sammons, 18, Senior
Julia Marie Badger, 18, Senior
Francis Howell High School, Saint Charles, Missouri
T: Gayle Perman
- ZO303T Gorillas in the Concrete Jungle—Captive and Wild Gorilla Behaviors in Relation to Social and Physical Environmental Variance**
Yonah Ra'ama Cohen, 17, Senior
Laurel Elizabeth Stephens, 17, Senior
Nederland Junior/Senior High School, Nederland, Colorado
T: Alberto Real
- ZO304T Effects of Tartrazine on Cellular Processes of Selected Organisms: Three-Year Study**
Annie Maria Vaughan, 18, Senior
Tara Lynn Rosenberg, 17, Senior
Yazoo City High School, Yazoo City, Mississippi
T: Debra Raddin
T: Kim Patterson
- ZO305T Ecological Survey of Salangids in the Tianjing Lake and Tuo Lake Around Bengbu Area**
Yi Zheng, 16, Junior
Qin Luo, 17, Junior
Bengbu, No. 2 High School, Bengbu, Anhui, China
- ZO306T Population Fluctuations of *Eleutherodactylus* in Southern Puerto Rico: Phase II**
Juan Carlos Munoz-Gonzalez, 17, Senior
Carlos Juan Munoz-Gonzalez, 17, Senior
Carmen Belen Veiga High School, Juana Diaz, Puerto Rico
T: Mercedes Zayas-Gonzalez
- ZO307T Influence of Feeding Rabbits With *Salix ellegantissima* in Their Reproductive Cycle**
Ronnald Alberto Caches Marfurt, 16, Junior
Fernando Gaston Delgado, 18, Junior
Liceo Departamental No. 1 Alfonso Espinoza, San Jose, Uruguay
T: Nilda B. Marfurt Carbajal
- ZO308T Corn Grainulometry—Alternative to Cost Reduction and Waste in Production of Chicken**
Acson Luiz Bosetti, 17, Senior
Erivelton Zanon, 18, Senior
Paulo Antonio Brunetto, 19, Senior
Escola Agrotecnica Federal de Concordia, Concordia, Santa Catarina, Brasil
T: Rogerio L. Kerber
- ZO309T Amphibians in Northeastern Thailand—Species Diversity, Morphological Differences and Growth Behavior**
Teerasak Chokchai, 17, Senior
Mayuree Khotmanee, 19, Senior
Siraporn Ubkeaw, 18, Senior
Muang Phon Phit Tha Ya Khom School, Khonkaen, Thailand
T: Varapich Patanasetanon

GUEST EXHIBITORS

Recycling of Wastes in the Process of Papermaking into Masses for Ceramic Tile
Edilene Souza Cunha, 21, Senior, Escola Senai Mario Amato, Sao Paulo, Brasil
T: Herbert Alves de Oliveira

Secrets of Alzheimer's
Bente Helene Laustsen, 21, Senior, Ringkobing Amts Gymnasium, Ringkobing, Denmark

ISEF AFFILIATED FAIRS

Alabama

Birmingham

Central Alabama Regional Science and Engineering Fair –
Physical Sciences
CH003 EN005

Birmingham

Central Alabama Regional Science and Engineering Fair - Life Sciences
BE005 BO004

Decatur

North Alabama Regional Science and Engineering Fair - Life Sciences
EV042 ZO020

Decatur

North Alabama Regional Science and Engineering Fair - Physical Sciences
CS022 EN027

Huntsville

Alabama State Science and Engineering Fair - Life Sciences
BE037 BI055

Huntsville

Alabama Science and Engineering Fair; Physical Sciences
EN064 PH037

Livingston

West Alabama Regional Science Fair
CS023 EV043

Mobile

Mobile Regional Science Fair
BI014

Talladega

Northeast Alabama Regional Junior Academy Science Fair
EA039 EV094

Troy

Southeast Alabama Regional Science Fair
BE012 BO010

Alaska

Anchorage

Alaska Science and Engineering Fair
EV048 EV049 MI304

Arizona

Prescott

Northern Arizona Regional Science and Engineering Fair
EN026 MI030

Sierra Vista

SSVEC's Youth Engineering and Science Fair
MI020 MI021

Tempe

Central Arizona Regional Science and Engineering Fair
BO054 MI313 ZO046

Tucson

Southern Arizona Regional Science and Engineering Fair
EA019 PH023

Arkansas

Arkadelphia

South Central Arkansas Regional Science Fair
EV020

Batesville

North Central Arkansas Regional Science Fair
BO037 ME049

Camden

The International Science and Engineering Affiliated Fair of the Southwest
Region of Arkansas
EN018 ME053

Conway

Arkansas State Science Fair
EN067 GN014 MA310

Fayetteville
Northwest Arkansas Regional Science and Engineering Fair
BI029 EV051 ME305

Hot Springs
West Central Regional Science fair
BO029 CS024 ME304

Jonesboro
Northeast Arkansas Regional Science Fair
BE304 BO013 PH011

Little Rock
Central Arkansas Regional Science Fair
CS026 EN034 MA305

Monticello
Southeast Arkansas Regional Science Fair
BI030 EN307 MI066

California

Alhambra
Alhambra Science and Engineering Fair
BI070 CH303 ME021

Danville
Tri-Valley Science and Engineering Fair
EV321 MI057

Fresno
Central California Regional Science, Mathematics and Engineering Fair
EV088 MA042

Palos Verdes Estates
Honeywell Regional Science and Engineering Fair
BE028 EV320 ME065

Sacramento
2000 Sacramento Region K-12 Science and Engineering Expo
BI068

San Diego
Greater San Diego Science and Engineering Fair
CS049 ZO047

San Francisco
San Francisco Bay Area Science Fair, Inc.
BE036 BI053

San Jose
Synopsys Silicon Valley Science and Technology Championship presented
by the Santa Clara Valley Science and Engineering Fair Association
EN050 EV070

Santa Cruz
Santa Cruz County Science Fair
CH047 PH305

Colorado

Alamosa
San Luis Valley Regional Science Fair, Inc.
BO005

Boulder
Boulder Valley Regional Science Fair
BI017 EA013 ZO303

Brush
Morgan-Washington Bi-County Science Fair
CH005 EN303 ME013

Colorado Springs
Pikes Peak Regional Science Fair
BE014 MI015 ZO301

Fort Collins
Colorado Science and Engineering Fair
EN019 EV009

Grand Junction
Western Colorado Science Fair
MI023

Greeley
Longs Peak Science and Engineering Fair
EV304 ME011 ME012

Sterling
Northeast Colorado Regional
ME030 ZO019

Connecticut

Hamden
Connecticut State Science Fair - Life Sciences
CS016 ME034

Hamden
Connecticut State Science Fair - Physical Sciences
CH018 EV038

New Fairfield
Science Horizons, Inc. Science Fair and Symposium
EN004

District of Columbia

Washington

District of Columbia Mathematics, Science and Technology Fair
EA041 EN079

Florida

Bradenton

GTE-Manatee Regional Science and Engineering Fair
BE002 PH003

Brooksville

Hernando County Regional Science and Engineering Fair - East
ME002 ME003

Bushnell

Sumter County Regional Science Fair
MA002 PH007

Crystal River

Citrus Regional Science and Engineering Fair
BO006 EV013

Fort Myers

Thomas Alva Edison East Regional Science Fair
EN002 EV008

Fort Myers

Thomas Alva Edison Regional Science Fair
CS001 EV301

Fort Walton Beach

Northeast Panhandle Regional Science and Engineering Fair
BI015 CH015

Fort Walton Beach

Southeast Panhandle Regional Science and Engineering Fair
BO022 MI018

Gainesville

Alachua Region Science and Engineering Fair
BI013 MI016

Gainesville

State Science and Engineering Fair of Florida
PH005 ZO003

Jacksonville

Northeast Florida Kiwanis Regional Science and Engineering Fair
MA012 MA014

Kissimmee

The Osceola Regional Science Fair
EV004 ME004

Lake City

Suwannee Valley Regional Science and Engineering Fair
EA011 ZO014

Leesburg

Lake County Regional Science & Engineering Fair
BI001

Marianna

Chipola Regional Science and Engineering Fair
BE001 PH001

Melbourne

South Brevard Science and Engineering Fair
BI008 BO008 CS302

Merritt Island

Brevard Intracoastal Regional Science and Engineering Fair
CH009 ZO008

Miami

South Florida Science and Engineering Fair - I
BI021 EA302 GN007

Miami

South Florida Science and Engineering Fair - II
BO030 EV044

Miami

South Florida Science and Engineering Fair - III
BE018 ME036

Miami

South Florida Science and Engineering Fair
BI019 EA014

New Port Richey

PASCO Regional Science and Engineering Fair
EV003 ZO002

Ocala

Big Springs Regional Science Fair
CS002 EN003 EN301

Okeechobee

Heartland Regional Science and Engineering Fair
BO001 PH004

Orlando

Orange County Regional Science and Engineering Fair-Physical Science
BE303 CS005 MA005

Orlando

Orange County Regional Science & Engineering Fair-Life Sciences
BI302 BO011 ME018

Palatka

Putnam Regional Science and Engineering Fair
BI002 ZO004

Panama City

Florida Three Rivers Regional Science and Engineering Fair
BI010 CH010

Pensacola

West Panhandle Regional Science and Engineering Fair
BE004 CH002

Pinellas Park

Pinellas Regional Science and Engineering Fair
BO003 EV006

Plantation

East Broward County Science Fair
CH001 ME001

Plantation

West Broward County Science Fair
EV005 ME005

Port Orange

Tomoka Region Science and Engineering Fair
BI007 ME010

Port St. Lucie

Treasure Coast Regional Science and Engineering Fair
BE003 EN305 ME089

Saint Augustine

River Region East Science Fair
PH002

Sanford

Seminole County Regional Science, Math & Engineering Fair
BO301 ME009 MI004

Sarasota

Sarasota Regional Science, Engineering and Technology Fair
BI016 EV309

Spring Hill

Hernando County Regional Science and Engineering Fair - West
EV002 ZO001

Stuart

Martin County Regional Science and Engineering Fair
BE007 ME019

Tallahassee

Capital Regional Science and Engineering Fair
EA303 ME006

Tampa

Hillsborough Regional Science Fair
BI049

Titusville

Brevard Mainland Regional Science and Engineering Fair
BE009 EA004

Vero Beach

Indian River Regional Science and Engineering Fair
CS303 EA006 ZO006

West Palm Beach

Palm Beach County Science and Engineering Fair - Region I
ZO051 ZO052

West Palm Beach

Palm Beach County Science and Engineering Fair - Region II
BI065 PH049

West Palm Beach

Palm Beach County Science & Engineering Fair - Region III
BI066 CH049

West Palm Beach

Palm Beach County Science & Engineering Fair - Region IV
CH050 MA049

Georgia

Albany

Darton College/Merck Regional Science Fair
EV022 EV023

Athens

Georgia State Science and Engineering Fair
EN058 EV081 EV319

Atlanta

Atlanta Science and Mathematics Congress
CH044 MI058

Brunswick

Coastal Georgia Regional Science and Engineering Fair
EV039 PH006

Griffin

Griffin RESA Regional Science Fair
BI027 PH303

Milledgeville

Georgia College & State University Regional Science and Engineering Fair
BE021 EA015

Savannah

First Congressional District Science and Engineering Fair
EV015 EV305

Warner Robins
Houston Regional Science and Engineering Fair
BO002 CH301 MI001

Hawaii

Honolulu
Hawaii Association of Independent Schools Science and Engineering Fair
BE314 BI042 ME058

Honolulu
Hawaii State Science and Engineering Fair
BI050 EV324 ME069

Kailua
Windward District Science and Engineering Fair
EV007

Kapaa
Northeast Kauai Regional Science & Engineering Fair
BO039

Pearl City
Leeward District High School Science Fair
BE016 ME026

Wailuku
Maui Schools Science and Engineering Fair
EV001

Illinois

Chicago
Chicago Public Schools Student Science Fair - Region I
ME061 MI046

Chicago
Chicago Public Schools Student Science Fair - Region II
BI045 EN054

Edwardsville
Illinois Junior Academy of Science Region XII Science Fair
CH035 EN057

Macomb
Heart of Illinois Science and Engineering Fair
BI044 BO308 CH033

Springfield
Illinois Junior Academy of Science Region X Science Fair
EV045 MI031

Indiana

Angola
Northeastern Indiana Tri-State Regional Science Fair
EA005 ME014

Bloomington
South Central Indiana Regional Science and Engineering Fair
EN008 MI010

Evansville
Tri-State Regional Science and Engineering Fair
BO040 EV069

Fort Wayne
Northeastern Indiana Regional Science and Engineering Fair
EN030 GN009

Gary
Calumet Regional Science Fair
BO023 ME028

Hanover
Southeastern Indiana Regional Science Fair
BO009 EV016

Indianapolis
Central Indiana Regional Science and Engineering Fair
EN068 MA025

Indianapolis
Hoosier Science and Engineering Fair
MI053 PH036

Muncie
East Central Indiana Regional Science Fair
EV034 MI022

Notre Dame
Northern Indiana Regional Science and Engineering Fair
ME063 ME064

Terre Haute
West Central Indiana Regional Science and Engineering Fair
EN017 MI017

West Lafayette
Lafayette Regional Science and Engineering Fair
GN002 ME007

Westville
Northwestern Indiana Science and Engineering Fair
EN053 EV072

Iowa

Ames

Iowa State Science and Technology Fair
BE316 EN066 MI059

Cedar Rapids

Eastern Iowa Science and Engineering Fair - A
MA016 ZO015

Cedar Rapids

Eastern Iowa Science and Engineering Fair - B
BO025 EN020

Indianola

South Central Iowa Science and Engineering Fair
EV050 ZO025

Kansas

Wamego

Wamego Regional Science and Engineering Fair
EV017 MI009

Kentucky

Bowling Green

Southern Kentucky Regional Science Fair
BO045 EV075

Louisville

Louisville Regional Science Fair - Physical Science
CH017 CH304 EN021

Louisville

Louisville Regional Science Fair - Life Science
ME035 ZO016

Louisiana

Baton Rouge

Louisiana Science and Engineering Fair
EA042 EN080 ME312

Baton Rouge

Region VII-Science and Engineering Fair
CS003 EA002

Bossier City

Bossier Parish Community College Louisiana Region I Science and
Engineering Fair
BI022 ME038

Houma

Terrebonne Parish Science Fair
BE008 BE301 BO007

Lafayette

Louisiana Region VI Science and Engineering Fair
BO020 EA009 EN304

Lake Charles

Louisiana Region V Science and Engineering Fair
EN009 EN010

Monroe

Louisiana Region III Science and Engineering Fair
PH028

Natchitoches

Louisiana Region IV Science Fair
CH025 ZO024

New Orleans

Greater New Orleans Science and Engineering Fair
GN016 ME087

St. James Parish

St. James Parish Science Fair
BE305 CS008 EV030

Thibodaux

Louisiana Region X Science and Engineering Fair
BE031 CH036

Maryland

Annapolis

Anne Arundel County Regional Science and Engineering Fair
BI020 ZO017

Baltimore

Morgan State University Science-Mathematics-Engineering Fair
BE032 EA034

Cumberland

Western Maryland Science Expo
MI056

Frederick

Frederick County Science and Engineering Fair
BI051 MA041

Gaithersburg

Montgomery Area Science Fair - Life Sciences
ME062 ZO037

Gaithersburg

Montgomery Area Science Fair - Physical Sciences
EN056 MA038

Largo

Prince George's Area Science Fair
CS044 EN070 ME309

Towson

Baltimore Science Fair
CS039 ME072

Battle Creek

Southwest Michigan Science and Engineering Fair
CS017 ME302 PH016

Big Rapids

West Central Michigan Science and Engineering Fair
CH051 EV326

Detroit

Michigan Science and Engineering Fair
EV032 MI052

Detroit

Science and Engineering Fair of Metropolitan Detroit –
Behavioral & Social Sciences
BE034 BE035

Detroit

Science and Engineering Fair of Metropolitan Detroit - Biochemistry
B1054

Detroit

Science and Engineering Fair of Metropolitan Detroit - Botany
BO049 BO050

Detroit

Science and Engineering Fair of Metropolitan Detroit - Chemistry
CH041 CH042

Detroit

Science and Engineering Fair of Metropolitan Detroit –
Earth & Space Science
EA035 EA036 EA306

Detroit

Science and Engineering Fair of Metropolitan Detroit - Engineering
EN062 EN063

Detroit

Science and Engineering Fair of Metropolitan Detroit –
Environmental Science
EV084 EV085

Detroit

Science and Engineering Fair of Metropolitan Detroit – Mathematics
CS038 MA040

Detroit

Science and Engineering Fair of Metropolitan Detroit –
Medicine and Health
ME070 ME071

Detroit

Science and Engineering Fair of Metropolitan Detroit - Microbiology
MI050 MI051

Detroit

Science and Engineering Fair of Metropolitan Detroit - Physics
PH034 PH035

Massachusetts

Amherst

Massachusetts Region I Science Fair
BI057

Boston

Massachusetts Region VI Science Fair
BI060

Bridgewater

Massachusetts Region V Science Fair
EV071 PH031

Cambridge

Massachusetts State Science Fair
GN011 MI043

Fall River

Massachusetts Region III Science Fair
EV082 MI049

Somerville

Massachusetts Region IV Science Fair
BI046 BI059

Worcester

Massachusetts Region II State Science Fair
EN051

Michigan

Ann Arbor

Southeastern Michigan Science Fair
CS009 MA050

Detroit

Science and Engineering Fair of Metropolitan Detroit - Zoology
ZO039 ZO040

Flint

Flint Area Science Fair
EN065 ME078

Port Huron

St. Clair County Science and Engineering Fair
EN055 EV074

Saginaw

Saginaw County Science and Engineering Fair
BI034 CS032

Moorhead

Western Minnesota Regional Science Fair
BI005 EA003

Rochester

Rochester Regional Science Fair
BI003 BI004

Saint Cloud

Central Minnesota Regional Science Fair and Research Paper Program
EV024 MI012

St. Paul

National American Indian Science and Engineering Fair
ME079 MI060

St. Paul

National American Indian Science and Engineering Fair
BE040 MI061

Minnesota

Bemidji

Northern Minnesota Regional Science Fair
CH006 MI007

Duluth

Minnesota Academy of Science State Fair
BE319 EV100 PH055

Duluth

Northeast Minnesota Regional Science Fair
BO027 EA010

Mankato

South Central/North Minnesota Regional Science and Engineering Fair
BI006 EN006

Mankato

South Central/South Minnesota Regional Science and Engineering Fair
EV019 ME016

Mankato

Southwest/North Minnesota Regional Science and Engineering Fair
EV018 MA006

Mankato

Southwest/South Minnesota Regional Science and Engineering Fair
CS006 ZO007

Minneapolis

Twin Cities Regional Science Fair
MA008 MI014 MI302

Minneapolis

St. Paul Science Fair
EV025 MI013

Minneapolis

Western Suburbs Science Fair
BO012

Winona

Southeast Minnesota Regional Science Fair
BO018 BO019 EV308

Mississippi

Biloxi

Mississippi Region VI Science and Engineering Fair
EV011 EV303

Booneville

Mississippi Region IV Science Fair
EN061 EN084

Greenville

Mississippi Region III Science and Engineering Fair
BO028 BO311 ME037

Greenville

Mississippi State Science and Engineering Fair
ME054 MI041 ZO304

Hattiesburg

University of Southern Mississippi Region I Science and Engineering Fair
EA018 ZO023

Jackson

Mississippi Region II Science and Engineering Fair
BI037 CS033 MI306

Mississippi State

Mississippi Region V-North Science and Engineering Fair
EV076 ZO031

Mississippi State
Mississippi Region V-South Science and Engineering Fair
BO038 EV063

Oxford
Mississippi Region VII Science and Engineering Fair
CS025 EN029

Missouri

Cape Girardeau
Southeast Missouri Regional Science Fair
EN059 ME066

Chillicothe
Three Rivers Regional Science & Engineering Fair
EV037 MI026

Hillsboro
Mastodon Park Science/Art Connection Fair
EN033 MI032

Jefferson City
Lincoln University Regional Science Fair
EV056 MI037

Joplin
Missouri Southern Regional Science Fair
BE025 EA024

Kansas City
Greater Kansas City Science and Engineering Fair
MI068 MI070

Rolla
South Central Missouri Regional Science and Engineering Fair
EA033 MA048

Saint Joseph
Mid-America Regional Science and Engineering Fair
GN006 MI019

Springfield
Ozarks Science and Engineering Fair
BE039 EN069

St. Louis
Greater St. Louis Science Fair
BE043 BO055

St. Peters
St. Charles-Lincoln County Regional Science and Engineering Fair
BO014 MA009 ZO302

Montana

Billings
Deaconess Billings Clinic Research Division Science Expo
EN046 ZO032

Butte
Southwest Montana Regional Science and Engineering Fair
EA307 EV036 MA017

Great Falls
Montana Region II Science and Engineering Fair
BO303 ME040 ME041

Havre
Hi-Line Regional Science and Engineering Fair - MSU-Northern
B1039 MI042 MI307

Missoula
Montana Science Fair
EA040 MA051 MI314

Nebraska

Hildreth
Central Nebraska Science and Engineering Fair
ME008 ZO005

Nebraska City
Greater Nebraska Science and Engineering Fair
CH029 EN039

Nevada

Elko
Elko County Science Fair
MI027 MI303 PH018

Las Vegas
Southern Nevada Science Fair
BE049 ME311

Reno
Western Nevada Regional Science Fair
EV055 PH024

New Jersey

Jersey City
Hudson County Science Fair
CS015 MI025

Lawrenceville
44th Mercer Science and Engineering Fair
EA012

Murray Hill
North Jersey Regional Science Fair - Senior Division
ME024 PH012

Murray Hill
North Jersey Regional Science Fair - Junior Division
BO016 ME025

New Mexico

Albuquerque
Northwestern New Mexico Regional Science and Engineering Fair
CS305 EN028 MA023

Farmington
San Juan New Mexico Regional Science and Engineering Fair
BI069 MA018

Grants
Four Corners Regional Science and Engineering Fair
BE011 MI008

Las Cruces
Southwestern New Mexico Regional Science and Engineering Fair
BI067 EN306 ZO022

Las Vegas
Northeastern New Mexico Regional Science and Engineering Fair
EV046 PH050

Portales
Southeastern New Mexico Regional Science and Engineering Fair
CH034 PH033

Socorro
New Mexico Science and Engineering Fair - Life Sciences
EV097 ME033

Socorro
New Mexico Science and Engineering Fair - Physical Sciences
EA017 MA024

New York

Brooklyn
Polytechnic University NYC Board of Education Math, Science &
Technology Fair - I
BI025 CS021

Brooklyn
Polytechnic University and NYC Board of Education Math, Science &
Technology Fair - II
CS020 PH019

Brooklyn
Polytechnic University and NYC Board of Education Math, Science &
Technology Fair - III
EV040 MA021

New York
New York City Board of Education/City University of New York Science
Fair - Biological Sciences
BI023 BI024

New York
New York City Board of Education/City University of New York
Science Fair
BI303 ME039 MI029

Poughkeepsie
Dutchess County Regional Science Fair
CH038

Rochester
Central Western Section-Science Teachers Asso. of NY State
Science Congress
CH021

Stony Brook
Long Island Science and Engineering Fair - I
BE313 MA034 ZO034

Stony Brook
Long Island Science and Engineering Fair - II
MA030 MA307 ME052

Stony Brook
Long Island Science and Engineering Fair - III
EV059 MA029 MA306

Stony Brook
Long Island Science and Engineering Fair - IV
BI304 EN041 MA028

Stony Brook
Long Island Science and Engineering Fair - V
BE311 CS031 PH025

Stony Brook

Long Island Science and Engineering Fair - VI
CH307 EV064 ME055

Stony Brook

Long Island Science and Engineering Fair - VII
BE026 BI305 MA035

Stony Brook

New York State Science & Engineering Fair
BI036 EN309 MA033

Syracuse

Greater Syracuse Scholastic Science Fair
ME043 ME045

Troy

Greater Capital Region Science and Engineering Fair
EN043 ME051

Utica

Utica College Regional Science Fair
EA031 EV083

North Carolina

Salisbury

Rowan Science, Math and Engineering Fair
EN022 EN023 EV310

North Dakota

Devils Lake

North Central North Dakota Science and Engineering Fair
CS047 ME094

Dickinson

Southwest North Dakota Regional Science and Engineering Fair
BE047 BE048

Fargo

Southeast North Dakota Regional Science and Engineering Fair
BO056 ZO048

Grand Forks

Northeast North Dakota Regional Science and Engineering Fair
EV092 ME084

Jamestown

Southeast Central North Dakota Science and Engineering Fair
EN072 MI063

Mandan

Southwest Central North Dakota Regional Science and Engineering Fair
CS048 ME085

Minot

North Dakota State Science and Engineering Fair
BI062 BO059

Minot

Northwest Central North Dakota Regional Science Fair
BO058 EV093

Watford City

Northwest North Dakota Regional Science Fair
BO057 PH047

Ohio

Archbold

Northwest Ohio Science and Engineering Fair
EV091 MI062

Athens

Southeastern Ohio Regional Science and Engineering Fair
CS004 EV010

Cleveland

Northeastern Ohio Science and Engineering Fair
EV027 ME022

Cleveland

Northeastern Ohio Science & Engineering Fair
EA007

Columbus

Buckeye Science and Engineering Fair
BI009 MA007

Columbus

Buckeye Regional IV
ME017 PH009

Columbus

Buckeye Regional VI
EV021 MI011

Dayton

Dayton Science and Engineering Fair
CH020 MI028

Dayton

Montgomery County Science and Engineering Fair
CS014 PH015

North Canton

Ohio Region XIII Science and Engineering Fair
BE024 EN047 EV315

Oklahoma

Ada

Oklahoma State Science and Engineering Fair
GN015 MA045

Alva

Northwestern Oklahoma State University Regional Science Fair
EA025 MI024

Bartlesville

Bartlesville District Science Fair
EV012 GN301 MA003

Edmond

Central Oklahoma Regional Science and Engineering Fair
CS010 EV033 MI301

Lawton

Cameron University Regional Science Fair
CH007 EN007

Miami

Northeastern Oklahoma A&M Science and Engineering Fair
EV026 GN003

Muskogee

Muskogee Regional Science and Engineering Fair
EV302

Muskogee

Muskogee Region Science and Engineering Fair - II
BE307

Oklahoma City

Oklahoma City Regional Science and Engineering Fair
MA001 MI002

Seminole

East Central Oklahoma Regional Science and Engineering Fair
BO015 GN004

Tulsa

Tulsa Regional Science and Engineering Fair
BE015 ME023

Wilburton

Eastern Oklahoma Regional Science and Engineering Fair
EN014

Oregon

Forest Grove

NorthWest Science Exposition
BI048 CH037 EA305

Gold Beach

Southwestern Oregon Regional Science Exposition
CH013 GN005

Pennsylvania

Carlisle

The Patriot-News Capital Area Science and Engineering Fair
CS012 ME029

Lancaster

Lancaster Science and Engineering Fair
BO026 CH016

Philadelphia

Ben Franklin Science Fair
MA047 ME082

Philadelphia

Benjamin Banneker Science Fair
PH041 ZO043

Philadelphia

Delaware Valley Science Fair
BE042 BI307 ME083

Philadelphia

Marie Curie Science Fair
EN077 ME088

Pittsburgh

Pittsburgh Regional Science and Engineering Fair
CH046 PH046

Pittsburgh

Pittsburgh Regional Science & Engineering Fair - II
BI061

Reading

Reading and Berks Science and Engineering Fair
EV078 PH032

York

York County Science and Engineering Fair
BE017 ME031

Rhode Island

Warwick

Rhode Island Science and Engineering Fair
CH008 ME015

South Carolina

Aiken

Central Savannah River Area Science and Engineering Fair
ME091 MI316

Charleston

Low Country Science Fair
ME032 ZO018

Clemson

Anderson-Oconee-Pickens Regional Science Fair
BE027 ZO035

Columbia

Central South Carolina Region II Science and Engineering Fair
BI047 EN311 MA039

Florence

Sand Hills Regional Science Fair
MI044 ZO036

Greenville

Upstate South Carolina Science and Engineering Fair
BO061 CS052

Hilton Head

Sea Island Regional Science Fair - Junior Division
PH053

Hilton Head

Sea Island Regional Science Fair - Senior Division
EN083 EN317 MI067

Spartanburg

Piedmont South Carolina Region III Science Fair
BO060 PH054

South Dakota

Aberdeen

Northern South Dakota Science and Math Fair
ME073 MI055 MI310

Brookings

Eastern South Dakota Science and Engineering Fair
CH043 EN314 EV087

McLaughlin

Northwest Area Schools Regional Science and Engineering Fair
BO302 CS007 EN011

Mitchell

South Central South Dakota Science and Engineering Fair
MA019 ME303 PH017

Rapid City

High Plains Regional Science and Engineering Fair
BO043 EA032

Tennessee

Chattanooga

Chattanooga Regional Science and Engineering Fair
EN031 PH022

Cookeville

Cumberland Plateau Regional Science and Engineering Fair
BO035 MI034

Jackson

West Tennessee Regional Science Fair
EV089 ZO044

Knoxville

Southern Appalachian Science and Engineering Fair
BE317 ME080 PH043

Memphis

Memphis-Shelby County Science and Engineering Fair - North Region
BI056 PH039

Memphis

Memphis-Shelby County Science and Engineering Fair - South Region
CS036 ME060

Nashville

Middle Tennessee Science and Engineering Fair
BI026 CH023

Texas

Amarillo

High Plains Regional Science Fair
BO021

Austin

Austin Area Fair and Festival
BE023 BI032 ME307

Austin

Texas State Science and Engineering Fair
BE041 BO310 CS045

College Station

Brazos Valley Regional Science and Engineering Fair
CS027 EN037

Dallas

Dallas Morning News-Toyota Reg. Science and Engineering Fair-
Life Sciences
EV035 EV306 ZO009

Dallas

Dallas Morning News-Toyota RSEF - Physical Sciences
CH012 EN012 PH301

El Paso

Sun Country Science Fair
BE006 EN302 PH008

Fort Worth

Fort Worth Regional Science Fair
EN013 EV029

Harlingen

Rio Grande Valley Regional Science Fair
BI309 CH053 EN081

Houston

Science Engineering Fair of Houston - Life Sciences
BI043 BO042

Houston

Science Engineering Fair of Houston - Physical/Engineering Sciences
CH032 EN052

Kilgore

East Texas Regional Science Fair
MI033 PH027

Kingsville

Coastal Bend Science and Engineering Competition
EN310 ME059

Laredo

Laredo Independent School District Science Fair
EN316 EV096

Laredo

United Independent School District Regional Science Fair
EA043

Lubbock

South Plains Regional Science and Engineering Fair
EA029 EV073

Odessa

Permian Basin Regional Science Fair
EN038 MA027 PH304

San Angelo

District XI Texas Science Fair
BE045 CS046 ME310

San Antonio

Alamo Regional Science and Engineering Fair I
CH011 EA008

San Antonio

Alamo Regional Science and Engineering Fair II
BI011 BI012

San Antonio

Alamo Regional Science and Engineering Fair III
BE013 EV028

Victoria

Texas Mid-Coast Regional Science and Engineering Fair
BE030 ME068

Waco

Central Texas Science and Engineering Fair
BO032 EV052

Wichita Falls

Red River Regional Science and Engineering Fair
BE306 BI018 CH019

Utah

Brigham City

Box Elder Science and Engineering Fair
CS029

Cedar City

Color Country Utah Science and Engineering Fair
CS037 MI047

Cedar City

South Central Utah Regional Science and Engineering Fair
EA030 EV080

Cedar City

Southern Utah Science and Engineering Fair
EV079 MI048

Cedar City

Southwest Utah Science and Engineering Fair
BE029 ZO038

Clearfiled

North Davis Area Science and Engineering Fair
EA023 EV057

Ogden

Ogden Area I Science and Engineering Fair
CH030 EN042

Ogden

Science and Engineering Fair of Utah - Life Sciences
MI039 PH026

Ogden

Science and Engineering Fair of Utah - Physical Sciences
MI038 PH048

Ogden

Weber Area Science and Engineering Fair-#1 Life
EV058 ZO030

Ogden

Weber Area Science and Engineering Fair - #2 Physical
CS306 EN044

Ogden

Weber Area Science and Engineering Fair - #3 General
CH306 ME047 MI035

Provo

Central Utah Science and Engineering Fair
BO309 CH039 CH040

Virgin Islands

St. Croix

St. Croix Science Fair
MA053 ME093

St. Croix

St. Croix Science Fair
ME092

Virginia

Arlington

Northern Virginia Science and Engineering Fair
BE022 GN302

Charlottesville

Piedmont Regional Science Fair
EN025 MA020

Chesapeake

Tidewater Science Fair
EN032 EV047

Dublin

Blue Ridge Highlands Regional Science Fair
EN060 ME067

Fairfax

Fairfax County Area I Regional Science and Engineering Fair
CS030 EN040 ME306

Fairfax

Fairfax County Area II Regional Science and Engineering Fair
BI031 ZO029

Fairfax

Fairfax County Area III Regional Science and Engineering Fair
BE310 MI036 PH051

Fairfax

Fairfax County Area IV Regional Science and Engineering Fair
BO034 CH027

Fairfax

Fairfax County Regional Science and Engineering Fair - Thomas Jefferson
CS028 EA021

Harrisonburg

Shenandoah Valley Regional Science Fair
MI003 PH010

Lynchburg

Central Virginia Regional Science Fair
BO031 CH024

Manassas

Prince William-Manassas Regional Science Fair
BO044

Potomac Falls

Loudoun County Regional Science and Engineering Fair
GN008 MA022

Roanoke

Western Virginia Regional Science Fair
BI058 EA037

Sterling

Virginia State Science and Engineering Fair
ME048

Washington

Bremerton

Washington State Science and Engineering Fair
BE051 ZO053

Kennewick
Mid-Columbia Regional Science and Engineering Fair
MI040 ZO033

Tacoma
South Sound Regional Science Fair
BO024 CS011 MA301

West Virginia

Huntington
West Virginia State Science and Engineering Fair
BO051 PH038

Keyser
West Virginia Eastern Panhandle Regional High School Science Fair
CS013 PH014

Montgomery
Central West Virginia Regional Science and Engineering Fair
GN010 ZO026

West Liberty
West Liberty State College Regional Science and Engineering Fair
EV077 MI045

Wisconsin

Glendale
Nicolet Science and Engineering Fair
CH014 ME027

Kenosha
Parkside Regional Science Fair
ZO013

Wyoming

Cheyenne
Southeast Wyoming Regional Science Fair
EA001 GN001

Greybull
Northern Wyoming District Science Fair
BI301 CH004 MI005

Laramie
Wyoming State Science Fair
BE010 BE302 MA004

ARGENTINA

Concepcion
Feria Provincial de Ciencia y tecnologica Intergeneracional
BE052 MI069

Cordoba
Feria Provincial de Ciencias y Tecnologia-Cordoba-ARGENTINA
BE309 EV053

Gaiman-Pcia
Feria de Ciencias y Tecnologia
BE050 ME090 ME314

Mendoza
Feria Provincial de Ciencia y Tecnologia
CS042 EN313

Mendoza
Feria Regional de Ciencia y Tecnologia
MI311

Parana
Feria Provincial de Entre Rios - Organiza: Coordinacion de Actividades Cientificas del Consejo General de Educacion de Entre Rios - Argentina
BE019 BE020 BE308

Posadas
National Science Fair of Argentina
BE046 EN315 ME086

Quilmes
MERCOTEC
EV066

San Miguel de Tucuman
5th Feria Provincial de Ciencias y Tecnologia Juvenil
BO312 EN085 EV101

San Nicolas
Provincial Science Fair of Buenos Aires
BE044 BE318

Zarate
CITEDUC
BE312

AUSTRALIA

Sydney
Intel Young Scientist Awards
BO052 EN312 ME077

BELARUS

Minsk
BelJunior 1999
CS019 MA015 MA303

BRASIL

Campinas
E. A. C. Science Fair
BE038 MI312 ZO042

Curitiba
National Science and Technology Fair
CS308

Novo Hamburgo
International Fair of South America - MOSTRATEC
ZO308

Novo Hamburgo
Feira Estadual de Ciencia e Tecnologia do Ensino Media do R S.
EA027

CANADA

Hamilton, Ontario
Hamilton-Wentworth & Halton Science and Engineering Fair
EN075 EN076

Montreal, Quebec
Montreal Regional Science Fair
BI063 MI064

Regina
CWSF/Waterloo-Wellington/Lambton
BO306 EA028 PH030

Regina
CWSF/Central and Eastern Newfoundland/Montreal
CS035 MI308 PH029

Regina
CWSF/Quebec Regional Science Fair
BI040 EN049

St. Catharines, Ontario
Niagara Regional Science and Engineering Fair
PH045

Toronto
Toronto Sci-Tech Fair
MI065 MI315 PH052

CHILE

Talca-Septima Region
Club de Ciencias Colegio de la Salle Talca - Chile
EA026 EV317

CHINA

Beijing
Children Science Fair of Beijing
EN045 EN308 EV060

Beijing
Science Project Contest for Senior School Students
BI033 ME050 MI309

Hefei City
Children Science Fair of Anhui Province, China
BO033 EN036 ZO305

Shanghai
The Children Science Fair of Shanghai
CH026 EV311 MA026

CHINESE TAIPEI

Taipei
Middle Taiwan Regional Science Fair
BO017 PH013

Taipei
South Taiwan Regional Science Fair
EN015 MA011

Taipei
National Science and Engineering Fair of Republic of China
MA010 ZO010

COSTA RICA

San Jose
Feria Nacional de Ciencia y Tecnologia XIII
EV325

San Jose
Feria Nacional de Ciencia y Tecnologia-I (XIII)
CH308

CZECH REPUBLIC

Sokolov
Students' Professional Activities (SPA)
CS043 PH040

DENMARK

Copenhagen
Unge Forskere
CH045

HUNGARY

Budapest
Innovation Contest for Young Scientists
EN073 EN074

INDIA

New Delhi
Intel Science Talent Discovery Fair
EN016 EV307 ZO012

INDONESIA

Jakarta
Rancang Bangun Teknologi
ME313

IRELAND

Dublin
Esat Telecom Young Scientists
MA302

ISRAEL

Jerusalem
Young Scientists in Israel - Contest
ZO050

ITALY

Milano
I Giovani E Le Scienze
EV318

JAMAICA

Brownstown
ASTJ, Schools and Colleges Science Exhibition, Northern Region, Jamaica
BO304 EA020 EN035

Kingston
ASTJ, Schools and Colleges Science Exhibition, Eastern Region, Jamaica
BO036 EV313 ZO028

Mandeville
ASTJ, Schools and Colleges Science Exhibition, Central Region, Jamaica.
CH028 EA022 EV312

Mandeville
ASTJ, Schools and Colleges Science Exhibition, National Finals, Jamaica
BI028 BO305 ME046

Montego Bay
ASTJ, School and Colleges Science Exhibition, Western Region, Jamaica
CH305 EV054 ZO027

JAPAN

Tokyo
Japan Students Science Awards
CH048 EN318 ZO049

KAZAKHSTAN

Almaty
DARYN National Junior Science Projects Competition
EA044 MA052

MALAYSIA

Kuala Lumpur
National Schools Science Innovation Competition
CS018 EN024 PH302

NETHERLANDS

Amsterdam
Dutch Contest for Young Scientists
EV314

NORTHERN IRELAND

Belfast
Young Innovators
BI308

NORWAY

Oslo
Young Scientists Contest
PH044

PERU

Chincha
Science and Technology Fair
CS304 EV041 ZO021

PHILIPPINES

Manila
(Search for Toys) Philippine Science Fair
BI041 BO041 BO307

PUERTO RICO

Arecibo
Arecibo Regional Science Fair
EV014 ME301 MI006

Bayamon
Bayamon Regional Science Fair I
EV068 ME057

Fajardo
Fajardo Region Science Fair I
EV086 GN303 ME075

Guaynabo
San Juan Archdiocesan Region I Science Fair
BI306 BO048 GN013

Guaynabo
San Juan Archdiocesan Region II Science Fair
BI052 ME074 ME308

Guaynabo
San Juan Archdiocesan Region III Science Fair
BE315 BO046 BO047

Guaynabo
San Juan Archdiocesan Region IV Science Fair
BO053 EV323 MA046

Gurabo
Caguas Educational Region Science Fair I
EN048 EV065 MI305

Gurabo
Humacao Regional Science Fair
BI035 EV062 EV316

Manati
Morovis Regional Science Fair I
BI038 EV067 ME315

Ponce
Ponce Regional Science Fair
CS034 ME056 ZO306

Region Educativa de Mayaguez
Mayaguez Educational Region Science Fair I
EA016 MA304 ME042

San German
San German Regional Science Fair
GN012 MA309 MI054

San Juan
Western Regional Mathematics Fair
MA036 MA037 MA308

San Juan
Eastern Regional Mathematics Fair
MA043 MA044 MA311

San Juan
San Juan Educational Region Science Fair
EV090 EV322

RUSSIA

Moscow
Junior - 2000 I
CH031 CS307 MA031

Moscow
Russian Youth Program "Step Into the Future"
EN078 ZO045

Moscow
Junior-2000-II
EA304 EV061 MA032

Moscow
ISAC Chernogolovka - 2000
CH022

Nalchik
Russian Youth Program "Step Into the Future"/South
EA038

SOUTH AFRICA

Pretoria
Expo for Young Scientists - South Africa
EV031 MA013

SOUTH KOREA

Seoul
Korea Olympiad in Informatics
CS050 CS051

THAILAND

Bangkok
National Science Projects Competition
ZO309

Bangkok
National Electronics and Computer Technology Center (NECTEC)
CS040 CS041

UKRAINE

Kiev
Young Scientists Competition
EV095

UNITED KINGDOM

London
British Youth Science Fair
EA301 ME076

URUGUAY

Minas
Feria Nacional de Ciencia y Tecnología Juvenil
ZO307

VENEZUELA

Valencia
Festival Científico y Tecnológico ANDIEP
EV098 EV099 EV327

ALPHABETICAL LIST OF FINALISTS

A 'T' after the booth ID number indicates a Team Project

Abbasi, Y.Z.	MA305T	Baars, M.	CH002	Blasiak, J.D.	MA038
Abdul Ali, M.	CS006	Badger, J.M.	ZO302T	Blasingame, F.E.	GN014
Abercrombie, A.L.	BI067	Baggett, S.	CS025	Blazina, A.E.	EV004
Abreo, A.P.	ME038	Bagwell, A.A.	BO060	Blevins, M.B.	BI002
Acevedo, I.C.	ME308T	Bailey, J.M.	BI006	Bolivar, L.V.	EV327T
Acevedo Marcano, B.	EV323T	Bailey, S.A.	ME089	Booth, J.L.	BO302T
Acosta, J.A.	BE019	Bailey, V.C.	BI014	Bordner, A.M.	GN009
Acosta, L.I.	BO030	Baker, A.C.	ME013	Borgen, M.D.	EV100
Adams, C.L.	GN015	Baker, L.R.	EA033	Bosetti, A.L.	ZO308T
Adams, D.M.	ME056	Baldonado, K.A.	BE307T	Boulva, F.	EA028
Adams, R.E.	GN301T	Bales, M.R.	EN033	Bounds, S.B.	EV303T
Adams, R.G.	ME054	Ball, L.C.	BO301T	Boutte, B.C.	EN304T
Adkison, S.A.	BE021	Balmeo, R.P.	BO041	Boyd, J.M.	EV022
Adnan, S.A.	BE310T	Banasiak, J.E.	MA003	Boyd-Graber, J.L.	CS024
Adolf, E.I.	EV319T	Banister, E.M.	CH301T	Brady, M.T.	BI039
Afkhami, M.E.	ZO009	Barkey, K.L.	EN305T	Brainard, R.D.	EV002
Agrawal, B.M.	ME027	Barnaby, C.S.	CH305T	Breczko, P.A.	ME314T
Agrawal, S.	EV307T	Barnard, H.S.	EN043	Breedlove, L.D.	ME022
Ahmed, M.	MI025	Barnard, J.E.	EV031	Brennan, J.C.	BO024
Ahmed, S.R.	BI303T	Barton, D.	BO305T	Brezina, K.A.	BI021
Ahrens, J.L.	ME041	Baty, D.L.	MA048	Bria, R.P.	MI067
Aier, V.M.	BI036	Bauman, K.W.	EV304T	Brimhall, J.J.	BO303T
Ain, M.D.	ME311T	Baumann, M.D.	PH045	Bringham, K.D.	MI048
Albert, T.A.	EV312T	Baumann, M.R.	EV052	Broadbent, S.E.	EV314T
Alexander, W.Z.	MI008	Beachkofsky, T.M.	MI017	Broton, C.E.	ME043
Allain, Q.E.	BO020	Beamish, T.M.	BO306T	Brown, L.M.	EV085
Allen, C.B.	ZO052	Beck, M.J.	PH015	Brown, N.D.	EN027
Allen, R.C.	EA021	Beckman, J.D.	MI063	Brown, T.R.	CH044
Allen, T.C.	EA011	Beckman, K.L.	BI062	Browne, S.M.	MA302T
Alvarez, S.G.	MA002	Beicker, C.R.	EA008	Brudno, Y.	ZO037
Ammen, C.W.	BO008	Bell, C.J.	CS011	Brunetto, P.A.	ZO308T
Amoroso, O.B.	BO307T	Belshaw, M.S.	EN076	Brunsdale, T.J.	EV057
Anderson, A.M.	EV019	Benitaz, I.M.	MI305T	Budakovsky, K.V.	EA038
Anderson, J.J.	EV018	Bennett, L.D.	CS027	Buehring, K.J.	ME059
Anderson, M.C.	EV313T	Bentley, J.M.	ME068	Buffington, J.A.	BI309T
Anderson, S.L.	EA303T	Bentolila, N.E.	EV005	Bugg, A.S.	EN021
Anderson, S.D.	BO049	Beranek, B.C.	GN002	Bunnell, B.	EA030
Andrews, J.M.	PH303T	Berkowitz, D.E.	BI304T	Burgess, A.T.	EA013
Anthes, E.K.	BE022	Bernard, N.P.	EA009	Burns, C.M.	ME306T
Aponte, J.	ME315T	Bettes, J.E.	EN014	Burt, L.C.	MI069
Aponte, J.C.	BI038	Bettles, A.M.	MI027	Burtness, J.A.	MI012
Aquino, M.C.	BE318T	Bevenger, C.E.	CH004	Busby, A.J.	EN059
Araya, H.I.	EV325T	Beverly, B.D.	ZO047	Cabrera, J.M.	ME308T
Arias, J.	EA029	Bhansali, P.	CH307T	Cadieu, C.F.	PH025
Arkus, K.	ME069	Biedler, M.L.	PH014	Cadieu, I.L.	CS031
Arner, K.E.	CH047	Biedler, P.M.	BO051	Cadiz, J.G.	ME026
Arnold, R.C.	EN061	Bienvenu, R.J.	EN080	Cain, M.S.	MI002
Arreola-Sotero, R.	EV324T	Bishop, A.M.	MI302T	Callender, T.M.	EV017
Arusingkha, W.	CS040	Biswal, D.B.	MI057	Calluzzo, J.L.	BE311T
Au, U.	BI305T	Black, P.H.	EV076	Cameron, C.T.	PH030
Azher, S.A.	ME078	Blas, D.V.	EA001	Camley, B.A.	BE014

Campbell, D.A.	BO037	Cohn, Z.H.	MA029	Dienstbier, M.	PH040
Cangul, M.Z.	BE004	Cole, B.J.	EV044	Ditton, M.R.	CH038
Cannon, B.B.	BO004	Cole, J.A.	BE001	Dixon, H.J.	GN001
Capo, L.C.	GN016	Cole, M.E.	EV043	Do, V.H.	BI032
Carpeneti, L.C.	MI304T	Coleman, R.A.	PH017	Dodge, L.E.	PH036
Carrillo, L.R.	BO307T	Collins, S.K.	MI316T	Dodson, S.F.	EN017
Carter, A.C.	EA015	Colon Villafane, G.J.	MA037	Dolan, W.E.	EN079
Caruthers, T.	PH007	Concepcion, E.M.	MA304T	Donaldson, E.A.	MI056
Casey, R.E.	MI049	Condit, R.D.	EN009	Dong, T.A.	CH303T
Cash, M.G.	PH054	Conklin, K.E.	BO032	Dorai, A.K.	BI046
Casino, M.J.	EN004	Contreary, K.A.	ME087	Dorgant, L.M.	ZO024
Castellanos-Otero, J.E.	ME042	Cook, J.T.	EN302T	Douglas, J.L.	PH009
Castilho, P.D.	MI312T	Copeland, J.N.	PH028	Dozier, C.C.	ME309T
Caston, S.B.	PH034	Coran, J.J.	BI008	Drouillard, L.E.	EN062
Ceric, Z.	PH002	Cordingly, J.L.	BI301T	Du Toit, J.	MA013
Chadalavada, S.C.	ME302T	Corey, A.L.	EN057	Duersch, A.	CH040
Chaffin, R.C.	ZO026	Cornwell, J.M.	CS022	Durham, C.E.	EN022
Chaiyachati, K.	EV319T	Corsetti, J.L.	EV084	Dusch, M.D.	EV016
Chamoglu, E.K.	CS020	Corson, B.K.	MI301T	Easley, E.A.	ZO022
Chan, G.S.	CH025	Cortes Jimenez, A.J.	EV099	Echterling, K.R.	GN006
Chang, S.J.	BI027	Cottingham, C.C.	ME023	Eddy, L.M.	MI026
Chang, S.Y.	BE023	Cox, G.	ZO038	Edwards, C.M.	CH051
Chansky, M.	MA008	Cramer, S.M.	ME002	Eisenman, K.T.	PH016
Chapin, A.R.	EV304T	Crawford, E.	BI308T	Ellis, T.S.	BO043
Charlton, S.M.	MI308T	Crawford, V.M.	EA019	Ely, T.R.	EN047
Chaudhuri, A.A.	PH048	Creighton, J.D.	MI062	Eng, D.R.	MA012
Chavez, A.T.	EV046	Creson, S.A.	BE039	Enright, E.B.	BO302T
Chen, C.T.	MA010	Crouch, K.R.	BE045	Ernst, L.M.	BO055
Chen, H.	ZO010	Crucet, K.	BI019	Esmoris, E.L.	BE312T
Chen, S.W.	MI038	Cuevas, E.O.	BO046	Esquivel, C.R.	CS304T
Chen, X.	MI309T	Cunningham, C.J.	CS032	Evans, C.A.	PH051
Chen, X.	EN036	Curry, E.W.	PH001	Evans, M.J.	BE037
Cheng, G.G.	PH033	D'Ancona, B.L.	ZO042	Evanson, J.J.	BO057
Chentanez, N.	CS041	Dal Pietro, G.	EN315T	Ezzedine, L.A.	MI312T
Chester, C.M.	ZO008	Dalal, R.P.	MI068	Faist, E.A.	BI016
Chiu, J.W.	MA004	Darcey, B.K.	EN070	Faner, T.R.	EA306T
Cho, S.E.	MA030	Davidson, N.R.	BO005	Fang, T.	BO033
Chocobar, N.	EN315T	Davidson, T.L.	ME007	Fang, Z.	MI309T
Chokchai, T.	ZO309T	Davies, K.M.	CH005	Fante, J.Q.	EN003
Cholera, R.	BI056	Davila, C.A.	BI306T	Farris, J.D.	MI001
Chong, W.S.	PH302T	Davila, R.J.	BI306T	Fayad, S.K.	BI069
Chrisman, S.A.	BE025	Davis, M.	ME037	Febres, C.	CS304T
Christian, G.A.	PH006	Day, S.A.	EA039	Feese, S.D.	ME049
Christian, III, J.A.	EN058	de Aranzeta, A.E.	CS002	Feingold, S.M.	ME036
Chu, D.	CH303T	De Jong, T.S.	EN314T	Feldman, S.D.	CH003
Chu, E.	ME091	DeCock, A.A.	EA003	Fell, R.J.	PH047
Chung, F.J.	CS035	deFreitas, M.C.	ZO028	Ferber, A.J.	BI302T
Cinco, K.J.	BI041	Del Rosario Kozak, M.	ME090	Fernandez-Sanchez, A.	CH308T
Clark, A.G.	CS033	Del Valle - De Jesus, J.M.	GN303T	Ferro, J.J.	BE046
Clark, T.D.	MI005	Delgado, F.G.	ZO307T	Figueroa, R.L.	EV322T
Clarke, K.A.	CH305T	Deng, W.	CH304T	Fike, J.M.	MI045
Claudio, W.V.	ME075	Depper, M.D.	ME304T	Fimple, L.D.	EV026
Claveria Grondona, C.P.	BO312T	Derbidge, C.M.	PH026	Finch, A.H.	MA053
Cobb, B.N.	MI303T	Dewan, A.K.	CH032	Finkbeiner, S.R.	MI052
Cobbins, R.B.	BE310T	Diao, Y.	ME050	Fleming, V.J.	PH305T
Cockburn, A.N.	BI022	Diaz, C.J.	EV090	Flores, O.E.	CH053
Code, K.D.	MI313T	Diaz, J.A.	BO053	Flowers, S.K.	EV069
Cohen, L.E.	MA034	Diaz, V.V.	EV323T	Forrest, C.A.	BO039
Cohen, Y.R.	ZO303T	Dicharry, W.B.	MA023	Forrest, H.F.	ME051

Forsythe, B.A.	EN066	Guzman, A.M.	ME315T	Hostetter, C.R.	BI301T
Foust, C.E.	GN003	Gwin, C.L.	EV321T	Hou, Y.	EV311T
Fox, A.F.	BI047	Ha, T.T.	ME031	Howse, A.D.	ZO031
Frackleton, E.B.	BO031	Hadd, A.N.	BI015	Hrdlicka, C.M.	MA009
Frankel, J.A.	BE313T	Haddox, N.R.	BE307T	Hsiung, D.T.	BI011
Fraser, N.A.	GN302T	Haines, B.A.	BI051	Huang, A.J.	PH301T
Fraser, P.S.	EV326T	Halegua, A.M.	BE026	Huang, A.Y.	ME010
Fuentes, A.	CS034	Hall, A.M.	BE306T	Huang, K.	EV306T
Fuller, M.E.	EA023	Hall, Y.K.	BO305T	Hudspeth, D.J.	BO013
Funes, F.R.	EA302T	Hammer, N.L.	ME080	Huffman, B.A.	EN068
Galatowitsch, M.L.	EV025	Hammonds, K.R.	EV315T	Humeas, J.C.	CS013
Gammon, C.L.	EV056	Hanisak, S.A.	ZO006	Hung, K.	CH307T
Gandhi, N.M.	ME060	Hankins, A.N.	ZO002	Hunniford, C.D.	EV309T
Garabedian, C.W.	EV088	Hanna, E.M.	EN302T	Hutcheson, B.L.	EN311T
Garon, J.R.	MI314T	Hannahan, H.N.	MI034	Huynh, N.	ME021
Garry, J.A.	ME303T	Hansen, C.C.	EN038	Hwang, G.	EN065
Garza, J.L.	EN310T	Hansen, T.A.	CH039	Im, M.N.	ME065
Gattis, A.A.	ME033	Harbaugh, M.G.	EV326T	Ingvolson, L.A.	ME016
Gebel, M.B.D.	EN309T	Hardy, B.C.	BE302T	Inniss, Z.M.	ME093
Gee, E.P.	MA041	Hardy, R.L.	BE048	Iosa, F.E.	BE052
Geil, E.C.	EA006	Harker, K.B.	BO026	Iskakov, E.	EA044
Geiler, K.A.	ZO034	Harper, D.R.	ME305T	Iwaishi, Jr., D.	BE314T
Geist, K.E.	BI010	Harris, J.N.	EN052	Jackson, M.E.	EV020
George, K.M.	EN064	Harrison, R.A.	CH028	Jackson, O.	MI306T
Georgekutty, J.	MA307T	Harshman, A.R.	EV309T	Jacobsen, S.G.	EV314T
Germann, G.H.	EA040	Hart, M.O.	EN010	Jamieson, L.A.	BI302T
Getz, J.R.	MA051	Hasper, M.T.	PH005	Janas, J.F.	EN053
Giang, A.	CH303T	Hatton, C.E.	EA305T	Jankowski-Bradley, E.A.	EV036
Giner, E.S.	EN313T	Haugen, M.R.	BO056	Jarczynski, J.	EV040
Girgis, N.M.	MI043	Haupt, K.C.	MI313T	Jeter, C.B.	EV089
Girvin, J.M.	EN008	Hayman, R.L.	EN305T	Jewkes, J.A.	BE029
Gleason, S.M.	CH020	Hecker, C.K.	BE047	Jin, R.	CH026
Glod, B.L.	BI057	Hecksel, D.B.	ME014	Jochim, A.A.	MI042
Godri, K.J.	MI065	Hedges, S.A.	BO023	Johns, J.I.	EV301T
Goebel, S.L.	BE043	Heltsley, W.N.	EN031	Johnson, E.E.	ZO035
Goins, M.L.	BE035	Hemming, T.R.	EV079	Johnson, J.M.	ZO301T
Gomori, G.	EN074	Henry, M.W.	EV039	Johnson, L.R.	EN035
Gondarenko, A.A.	CS028	Hermansen, A.E.	BI007	Johnson, M.J.	PH011
Gonzales, Jr., L.	EV302T	Hernandez, B.A.	EV325T	Johnson, N.A.	EA020
Gonzalez, M.	MA308T	Hernandez, R.W.	EN072	Jones, C.F.	BO012
Gonzalez, R.M.	BE051	Hertz, J.	EV059	Jones, L.M.	BO028
Goodman, M.L.	EV083	Hicks, M.M.	BE319T	Jorgenson, T.L.	MI021
Gottesman, R.B.	MA035	Hicks, R.R.	BE319T	Josefy, M.A.	PH304T
Gracia, M.	ME313T	Higgins, C.J.	BI308T	Jouei, N.	CH001
Grant, S.N.	ZO016	Higgins, T.L.	EA024	Jove-Jimenez, K.	ME301T
Gray, B.M.	ME070	Hippalgaonkar, S.R.	BO011	Joyce, J.M.	CS030
Green, D.R.	PH029	Ho, S.	MA011	Juarez, E.T.	GN007
Gregg, J.L.	PH304T	Hoard, R.E.	BE015	Judah, A.J.	PH052
Gregg, L.M.	EV033	Hoff, K.M.	ME011	Juel, M.F.	PH055
Griggs, III, W.E.	BE012	Hoffmeister, G.	CS308T	Jun, D.J.	ME024
Grillo, J.L.	BE316T	Hohl, A.M.	ZO015	Just, K.H.	MA006
Grimes, L.D.	EN307T	Holt, K.F.	EV047	Kaae, J.E.	ME040
Grimm, K.A.	MI030	Holwitt, G.S.	CH011	Kadlubar, S.P.	BI030
Grosso, M.V.	BE309T	Hong, W.	EN045	Kaganovich, M.	MI010
Grothaus, G.A.	CS052	Hook, S.A.	BO310T	Kaleleiki, K.	BE016
Grulke, R.H.	EV072	Hoopes, S.A.	BE024	Kamenov, D.Z.	MA052
Guerra, C.I.	EV041	Hooven, S.L.	ME003	Kanda, A.	EN318T
Guffey, S.E.	BE304T	Hornsby, H.	BE301T	Karni, E.D.	EN050
Gunst, K.B.	MI308T	Horodyskyj, U.N.	EA007	Kase, M.S.	BE313T

Kaufman, H.M.	MI016	Lasseter, L.T.	EV023	MacMillan, K.E.	BO301T
Kaul, V.	BI044	Lattekamp, H.S.	CH029	Magnan, M.R.	ME006
Kay, D.L.	BE314T	Lau, M.	EN312T	Mahepath, N.E.	ME092
Kazama, D.	EN318T	Lauten, C.J.	BE303T	Mahon, R.M.	EV312T
Kazanovicz, L.A.	ME304T	Lazar, S.C.	EA042	Maidana, S.A.	BE308T
Keely, S.P.	PH024	LeBlanc, B.D.	BI040	Malakhovsky, I.	MA303T
Kellas, A.	EN032	LeBlanc, E.J.	BE301T	Malloy, C.W.	EN011
Kelley, J.D.	EV051	Lebron, V.M.	EV316T	Malysheva, A.S.	EV061
Kellogg, L.	EA307T	Lee, A.M.	BE027	Manzano, L.J.	EN313T
Kelso, K.S.	ZO051	Lee, C.S.	PH302T	Marden, T.C.	EN018
Keshtova, F.M.	CS307T	Lee, F.D.	PH013	Marfurt, R.C.	ZO307T
Kessans, S.A.	BO009	Lee, J.	CS051	Markouski, S.	MA303T
Khargonekar, A.P.	MA050	Lee, M.M.	EV070	Markyvech, T.A.	MI051
Khotmanee, M.	ZO309T	Lee, Y.	BO017	Marquez, A.V.	PH008
Kihune, K.N.	BE314T	Leonard, J.J.	EV310T	Marro, L.E.	EV317T
Kilgore, A.D.	CH042	Leonard, M.L.	EV310T	Marrs, D.C.	BI029
Kim, E.	BE311T	Leong, J.S.	EN054	Martin, M.D.	ME310T
Kindinger, B.L.	EV006	Leslie, S.R.	MI066	Martinez, C.R.	BO309T
King, M.A.	MI033	Letourneau, E.C.	MI302T	Martinez, L.	MI305T
Kingdon, K.J.	BE301T	Levinson, J.S.	BE036	Martinez - Rossario, R.E.	GN303T
Kingsbury, B.J.	EV008	Levy, J.M.	ME062	Martzall, J.S.	EN030
Kingsbury, M.R.	ME084	Levy, M.A.	BI058	Marx, G.E.	MI040
Kingsbury, R.W.	EN002	Li, H.H.	EV012	Masters, C.T.	PH303T
Kinjo, K.L.	EA032	Li, J.	BI033	Mattes, J.	CS308T
Kirkland, B.M.	MA017	Li, K.H.	BE041	Matthew, K.O.	BI054
Klausner, L.S.	EN303T	Li, S.	EN308T	May, B.L.	ME018
Klausner, L.W.	EN303T	Little, L.M.	BO311T	McAdoo, C.K.	PH018
Kluzak, M.J.	EN006	Liu, C.Y.	CS003	McAlister, J.L.	ZO301T
Knorr, D.A.	EV093	Liu, C.	EV060	McCloud, G.F.	ZO039
Koerner, C.L.	EA307T	Livingston, G.C.	EN306T	McCuaig, K.R.	BO021
Koistinen, P.A.	CH043	Lizundia, J.F.	MI311T	McDaniel, J.C.	BE304T
Kollar, T.F.	BE317T	Lloyd, I.E.	CH030	McDaniel, M.S.	CS023
Koppel, A.L.	ZO029	Loeb, G.B.	PH023	McDonald, L.A.	CH006
Korman, J.B.	BO061	Lohmann, C.A.	MI024	McDonald, T.J.	PH038
Kornely, A.M.	ME306T	Long, N.R.	BO042	McFarlane, R.A.	ME046
Kotha, A.	BI049	Looper, D.L.	MA310T	McGinnis, L.M.	ME048
Kothari, B.	MA306T	Lopez, A.S.	EV098	McGregor, A.L.	BE306T
Krisel, C.A.	ZO018	Lopez, E.	EV067	McIntyre, R.D.	PH003
Krnavek, D.J.	EN310T	Lopez, J.M.	BI035	McKenna, A.	MI315T
Krohn, A.J.	ZO030	Lopez Poitevin, K.X.	BO047	McKenna, J.P.	EA301T
Kruse, N.A.	EV010	Lorbert, A.	MA021	McKeon, C.D.	MA045
Kurtev, M.V.	MI046	Lord, N.D.	BI034	McKinney, S.	EA035
Kurtz, B.A.	EA037	Lossing, M.L.	MI307T	McLeod, A.	BO052
Kurzweg, P.H.	PH046	Lotts, B.L.	MI020	McNulty, S.L.	MA022
Kuzmich, M.	CS019	Low-Nam, S.T.	BI017	McPhail, M.L.	EV063
Lachman, B.J.	CS004	Lowey-Ball, S.B.	MA014	McQueen, A.B.	ME310T
Lagarde, A.C.	BO007	Loy, G.C.	EV305T	McQuillan, J.P.	PH031
Lague, A.R.	EN317T	Loyer, K.M.	CS044	McQuiston, L.E.	ME312T
Lai, A.	EV027	Lucca, S.A.	EV082	Meaders, K.B.	CH306T
Laing, T.J.	CS306T	Lukasik, K.D.	BO050	Medina, Y.N.	EN085
Lam, K.	EN312T	Luna, A.M.	CH034	Meeks-Matous, J.R.	EN060
Lamb, V.H.	MI009	Luo, Q.	ZO305T	Mehlhorn, D.T.	CS305T
Lamont, T.T.	BO036	Luque, M.	EN048	Mehta, S.	ME083
Lancaster, J.R.	CH017	Lussier Desbiens, A.	EN049	Mendivil, J.M.	BE006
Lang, R.H.	ZO043	Luster, C.L.	PH037	Mendoza, E.A.	MI311T
Langston, M.D.	EN084	Lutz, A.N.	CH007	Mendoza, I.d.	EN081
Lankheit, K.M.	ME066	Lyons, M.R.	MI023	Meng, X.	EN308T
Lanoff, J.M.	MA024	Macagno, N.S.	BE309T	Menning, H.M.	MI314T
Larson, J.J.	EV092	MacDonald, C.E.	MA027	Meraj, S.M.	BI024

Mercado, W.	GN012	Munoz-Gonzalez, J.C.	ZO306T	Orridge, O.O.	BO304T
Mercuri, D.	EA302T	Muralidhara, V.	EN016	Ortiz, R.	ME028
Meriweather, T.	MI058	Muroski, M.E.	ME004	Orwig, M.H.	CH301T
Merkord, N.M.	ME307T	Murphy, J.R.	PH022	Ottenbacher, M.V.	MI055
Merrick, K.R.	EV045	Murti, S.B.	MA040	Ou, J.	BI059
Merrill, R.A.	CS306T	Musa, H.	CS018	Overcast, M.C.	BO303T
Messina, M.E.	EA002	Mustafi, D.	BI045	Ovetsky, A.	MA047
Michaels, J.L.	EA004	Mustard, K.M.	BE009	Oyler, B.A.	BE317T
Mietus, J.A.	CH033	Myers, R.E.	EV021	Pack, S.K.	EN307T
Miller, R.M.	BE017	Myers, T.K.	MI022	Painter, C.G.	EA025
Miller, S.B.	EV302T	Mylavarapu, S.	BI013	Palacios, Jr., A.	EN316T
Miller, S.M.	CH009	Myr, W.	EN055	Palatinus, J.A.	PH043
Millet, L.A.	BE031	Nagarkatti, N.	ME067	Palermo, K.M.	MA308T
Milne, A.N.	BO306T	Nahum, O.	ZO050	Palmen, B.M.	BI004
Minchow, K.D.	EN039	Nance, J.P.	CH024	Palmer, S.M.	EV032
Mindeguia, M.I.	ME086	Nash-Keller, T.D.	MI310T	Pan, Z.	BI003
Mingelgreen, C.S.	MA033	Nayyar, S.	BI026	Parquharson, K.S.	CH305T
Miranda, M.R.	MA304T	Neal, R.G.	BE304T	Pastore, M.E.	EV009
Mishra, S.	ZO012	Neil, A.A.	EA022	Pastorino, M.	EV318T
Mitchell, A.L.	CH036	Nelson, I.L.	MA310T	Pate, A.D.	BI001
Mitchell, M.L.	MI306T	Nelson, L.A.	EA010	Patel, A.H.	EV013
Mitchell, V.K.	GN301T	Nemani, D.	MI036	Patel, M.D.	ME019
Mittal, A.C.	ME034	Newman, L.M.	BI065	Patel, R.S.	BO006
Moghul, K.F.	CS015	Ngo, A.	BI070	Patterson, E.L.	MI007
Mohammed, I.M.	MI018	Nguyen, B.T.	BO310T	Patterson, R.R.	EN019
Mohanty, J.F.	CH008	Nguyen, T.D.	MA001	Paul, L.A.	MI303T
Mohottige, D.A.	PH049	Nichols, T.	BO044	Payne, J.C.	PH032
Moldan, A.J.	ZO007	Nijhawan, N.	MI315T	Pearl, W.H.	CS305T
Molina, G.	EV322T	Noe, C.M.	BI018	Pechter, J.E.	CS303T
Molina, S.	EV316T	Notah, A.	BE040	Pechter, W.H.	CS303T
Moncalvo, G.	EV318T	Nyberg, M.H.	CH018	Pedatella, K.E.	ME052
Monge, J.J.	BE315T	O'Brien, J.L.	CS005	Peeples, M.S.	MA039
Moniz, A.G.	MI301T	O'Connell, C.M.	EA301T	Pelzer, A.C.	EV064
Montgomery, E.C.	BE013	O'Connell, T.F.	EN034	Perez, G.M.	EV325T
Montoya, R.J.	BI060	Oas, A.J.	EV308T	Perez-Moyet, R.	EA016
Moody, J.B.	ZO004	Oas, N.J.	EV308T	Perley, D.A.	EA017
Moore, S.C.	MI304T	Oberg, E.N.	MI035	Pernezny, B.J.	CH049
Morcos, E.	EN313T	Oberg, T.S.	MI039	Perri, R.	MI064
Moreda, M.A.	BO048	Oberlin, N.R.	EV091	Perry, A.N.	EN007
Morehart, T.J.	ME305T	Obst, A.J.	PH010	Peruzzotti, L.J.	MI044
Moreno, F.A.	BI309T	Ocasio, L.d.	ME308T	Peschel, E.P.	EV028
Moreno, Z.V.	EV327T	Oco, R.Y.	BO307T	Peterson, O.S.	EN025
Moriggia, E.	EV318T	Odland, J.V.	ME073	Peterson, R.A.	BE049
Morris, F.O.	EV054	Oestman, E.L.	ZO019	Pettersen, H.S.	PH044
Morris, M.J.	ME077	Oeth, J.M.	BE316T	Petty, M.M.	GN004
Morshedi, S.H.	MA305T	Oguilve-Villalobos, G.	CH308T	Phan, C.T.	CS010
Mosher, M.A.	BE011	Ogunnaike, O.D.	PH041	Phillinganes, D.M.	EA036
Mougey, K.J.	ZO032	Ojeda, L.R.	EV065	Pickard, A.R.	EN044
Mousa, A.S.	ME082	Okada, S.L.	EV007	Pignataro, F.M.	BI304T
Mowery, K.B.	CS039	Oldaker, S.L.	EV321T	Piper, B.M.	CH037
Moya, R.	EV096	Oldham, L.A.	ZO044	Pitter, S.E.	EA303T
Muehler, K.A.	ZO048	Oleyte, K.H.	BI042	Pizarro, J.R.	MA043
Mukamel, R.E.	CH021	Oliver, M.M.	ME311T	Pletcher, B.T.	PH039
Mukhopadhyay, R.	CS038	Olivera-Toro, A.J.	MA311T	Pollen, A.A.	GN011
Mulc, M.I.	MI311T	Olson, C.	EV080	Ponsock, A.T.	ME312T
Mulcare, R.W.	EV038	Olumide, A.	BE032	Poole, P.S.	ZO040
Mulroy, A.M.	EV077	Olvey, K.E.	ME009	Portillo, B.M.	BE312T
Munekiyo, T.K.	EV001	Orejuela, H.	BI303T	Potts, S.S.	PH305T
Munoz-Gonzalez, C.J.	ZO306T	Oroquieta, F.M.	ME314T	Powell, D.J.	ZO003

Powell, K.K.	BE003	Roy, J.M.	EN304T	Shapiro, J.A.	GN008
Powell, K.A.	BI028	Rozhkov, A.Y.	ZO045	Shedletsky, J.J.	CS016
Pozmantir, S.S.	EN012	Rubinstein, J.I.	MA307T	Shenai, S.B.	EN063
Prince, A.E.	BE038	Rubiolo, J.I.	EV053	Shepherd, G.W.	EV050
Propst, K.J.	ME030	Ruedy, D.R.	BI031	Shibata, T.	EN318T
Prosek, L.	CS043	Ruter, M.D.	EN314T	Shih, T.	PH019
Pugliese, V.M.	MA301T	Rutter, K.E.	GN302T	Shoichet, R.M.	BI304T
Punj, M.S.	EN020	Ryssdal, L.D.	CH013	Shpringer, R.L.	BI053
Pyszka, K.L.	ME064	Saddawi-Konefka, D.	ME063	Shukla, A.	BO034
Quinones, A.	MA309T	Sagona, P.J.	EN311T	Siddiqui, A.	BE002
Quinones, A.A.	MA046	Saha, A.	EN301T	Sidorov, I.V.	CS307T
Rabiej, D.R.	CS017	Sajan, F.D.	CH050	Siebenhard, G.G.	BE308T
Rachesky, E.R.	CH010	Salahudeen, A.A.	BI037	Sieber, P.C.	BE308T
Rajandran, R.	EN024	Salazar, C.C.	EV317T	Siegrist, M.S.	BE020
Ramirez Tapia, J.C.	ZO021	Salcido, A.A.	BI309T	Sikorski, J.C.	MI047
Ramos, M.d.	MA036	Saltzman, A.B.	BI009	Simms, K.O.	BO305T
Randolph, J.B.	BO027	Sammons, E.L.	ZO302T	Simon, A.M.	ZO013
Rashidi, P.	MA305T	Sammons, K.A.	BO014	Simonelli, L.S.	BE318T
Rathore, S.	EV307T	Sanborn, S.M.	ME058	Simuni, E.M.	BI023
Redding, K.S.	BO035	Sanchez, R.R.	EN316T	Sinclair, B.G.	BO304T
Reed, B.M.	GN010	Sand, M.W.	BE303T	Sinha, N.N.	PH050
Reese, B.E.	BI066	Sanders, T.R.	EN026	Sircar, M.	BI025
Reid, A.S.	EV312T	Sandin, C.M.	EA014	Sirisakorn, S.	EV320T
Reisinger, J.S.	CS045	Sandrick, E.L.	MA018	Skopenkov, M.B.	MA031
Resler, C.A.	EV303T	Santiago, A.L.	EV068	Skupov, K.M.	CH031
Reule, R.B.	MI019	Sarracino, A.M.	MI061	Slattery, J.R.	MI014
Revely, N.A.	ME076	Scherer, R.L.	BO040	Slavin, B.A.	CS012
Reynolds, P.R.	EN067	Schiermeister, R.A.	CS048	Sloane, C.M.	BE007
Richardson, A.C.	BO022	Schiller, A.A.	BO025	Sloma, M.M.	ME302T
Ridl, J.J.	BO059	Schmandt, B.M.	ME071	Small, H.A.	ZO027
Riley, T.J.	EV015	Schmidt, K.L.	CS046	Smith, A.D.	EV011
Rios, C.E.	EN316T	Schmiedt, K.M.	EV024	Smith, B.M.	ZO014
Risco-Adam, P.L.	ZO001	Schneider, E.M.	EA027	Smith, C.M.	CH304T
Rivera, D.	GN303T	Schommer, R.D.	EA018	Smith, E.L.	ZO053
Rivera, G.M.	EV062	Schraeder, C.W.	CS029	Smith, L.E.	BE034
Rivera, M.	BE315T	Schreiner, E.K.	EV074	Smith, P.S.	MI032
Rivera, N.B.	BI052	Schroeder, C.A.	MA019	Smith, S.A.	EN075
Rizzuto, S.J.	BE305T	Schuh, S.T.	BO018	Smith, S.L.	BO038
Roberts, B.L.	EN005	Schultz, E.B.	BO308T	Snell, S.C.	EA041
Roberts, M.C.	ME029	Schwartz, A.	MI306T	Snyder, C.R.	CH016
Robertson, K.A.	CH023	Scott, J.T.	PH027	Snyder, J.A.	ZO020
Robinson, K.L.	ME309T	Scott, M.J.	BO016	Snyder, S.N.	CH015
Rodgers, M.A.	EN040	Scriven, M.D.	ME309T	Solis-Duran, M.J.	CH308T
Rodriguez-Nazario, A.	MI006	Scruggs, R.S.	BI055	Solovyov, D.N.	EA304T
Rodriguez-Perez, J.D.	ME301T	Seda, L.A.	EV322T	Soltero-Lugo, J.	MA311T
Rodriguez, M.E.	BE050	Seda Padilla, R.	MI054	Song, H.F.	CS049
Rogers, E.M.	CS001	Sedillo, J.D.	EN028	Sotolongo Diaz, Y.H.	EV086
Rollason, J.D.	CS007	Segura, C.A.	BE008	Soucie, A.P.	ZO005
Romanenko, D.	EV095	Seideman, C.A.	ME055	Spangler, J.E.	EV071
Romero, L.B.	BE312T	Sellers, B.A.	EV055	Sparrow, E.B.	EV048
Rosenberg, R.L.	PH053	Senci, C.M.	BE044	Speidel, C.L.	CS047
Rosenberg, T.L.	ZO304T	Senda, N.	CH048	Spence, D.B.	CH012
Rosenbloom, D.I.	MA028	Sendek, L.B.	CH046	Sridhara, S.K.	ME072
Rossi, M.P.	EA026	Seppanen, J.B.	EV087	St. Jean, E.N.	MI029
Rothschild, J.M.	CS036	Shah, E.D.	EV029	Stadler, L.K.	EV315T
Roussel, B.E.	BE305T	Shah, M.M.	BO002	Stark, W.L.	BO010
Rowan, J.	EV305T	Shah, N.A.	CS302T	Starkey, A.P.	EA005
Rowe, C.M.	ME053	Shah, P.H.	EN309T	Starodubtsev, V.V.	MA042
Rowton, J.L.	BO029	Shakoor, N.	MI031	Staub, B.I.	ME012

Steib, E.M.	EV030	Ullmer, A.L.	EV034	Williams, A.M.	BI308T
Steiner III, S.A.	CH014	Upah, A.R.	CS305T	Williams, E.K.	BE028
Steinkruger, C.M.	ME008	Urbano, L.F.	CS021	Williams, J.D.	EN023
Stepanenko, D.P.	EN078	Usbeck, K.F.	EV078	Williams, R.V.	BI307T
Stephens, L.E.	ZO303T	Valdez, E.S.	EV101	Williamson, T.K.	BO304T
Stevens, A.L.	BI020	Valdez, J.L.	EV324T	Willison, K.A.	MI053
Stevens, J.L.	BI043	Valverde, C.G.	CS042	Wilson, C.E.	MA020
Stewart, K.A.	CH041	Van Dyke, P.M.	CH019	Wilson, G.L.	ZO025
Stoesz, E.A.	BE010	Van Etten, A.A.	MA301T	Wilson, J.R.	EV073
Stone, Z.B.	BI050	VanAntwerp, J.L.	ME307T	Wilson, K.A.	EV003
Stormer, E.M.	MI011	Vanelli, S.M.	BE030	Wilson, K.M.	EV313T
Story II, J.W.	BO015	Varela Frias, D.M.	BO312T	Wilson, R.A.	EA306T
Stovall, J.P.	BE317T	Vasudeva, R.S.	EV081	Wilwert, J.L.	BI307T
Stowers, C.C.	EV042	Vaughan, A.M.	ZO304T	Wimmer, M.E.	BE316T
Strauss, D.	EN309T	Vazquez, J.	MA309T	Winger, M.E.	MA005
Striemer, G.M.	BI005	Ve'lez, R.	MA044	Winkeller, J.F.	BO054
Suri, A.B.	MI013	Vega, W.E.	GN013	Wirfs-Brock, J.E.	EA305T
Swanson, J.A.	ME094	Velez-Rosario, H.	EV014	Wisniewski, S.R.	ZO036
Swam, A.N.	BI048	Viceute, L.F.	ME314T	Wissner-Gross, Z.D.	EN041
Syaifuddin, A.	ME313T	Victor, N.H.	EV305T	Wohl, A.R.	BO058
Taake, K.P.	CH035	Vilhauer, S.M.	ME303T	Wolff, S.E.	BE302T
Takahashi, Y.	ZO049	Villarreal, E.J.	EA043	Wolflin, A.B.	ZO017
Tanzini, E.H.	EA012	Vinberg, J.K.	MA306T	Womack, J.C.	EN046
Taylor, A.B.	ZO023	Vincent, N.M.	MI041	Wong, Y.	ME015
Taylor, J.B.	EV301T	Vogt IV, R.C.	CS009	Woods, A.E.	EN042
Taylor, P.	MA302T	Wacker, L.M.	MI015	Woolsey, M.U.	EN029
Taylor, R.A.	MI316T	Wagner, L.T.	MI028	Wright, R.L.	CS037
Tea, H.S.	EV320T	Waguespack, R.P.	CS008	Wright, S.W.	BE005
Terry, J.C.	MA025	Walavalkar, S.S.	PH035	Wu, D.C.	PH301T
Tewksbury, C.M.	EA031	Walk, J.R.	MA049	Wu, O.C.	ME017
Thiessen, K.A.	GN005	Walker, L.E.	CH027	Wu, T.F.	EN015
Thomas, T.R.	CS302T	Wall, A.E.	EA034	Wulf, N.W.	EN317T
Tian, Z.	EN051	Wallach, B.A.	ME039	Xu, J.	EN056
Tibbetts, M.D.	BO003	Wang, A.F.	MI070	Xuan, Y.	ME035
Tietz, B.A.	ME085	Wang, D.J.	EV306T	Yaninello, F.	EV066
Tishchenko, S.A.	MA032	Wang, H.	EV311T	Yazzie, K.	MI060
Tom, L.K.	ZO033	Wang, R. Y.	CS026	Yazzie, K.T.	ME079
Tong, G.K.	ME061	Wang, Z.	MA026	Yip, E.S.	BI061
Tong, M.Z.	BI063	Ward, J.E.	EN069	Yohe, L.V.	MI310T
Tooker, N.T.	EV097	Ward, T.L.	EV094	Yong, M.	PH302T
Tordrup, K.R.	CH045	Webb, L.A.	MI003	Yoon, J.	CS050
Torres, D.A.	ME074	Weber, C.R.	EV058	Young, G.J.	PH012
Torres, P.V.	BE018	Weers, R.F.	BO308T	Yu, C.W.	BI068
Torres, Y.M.	ME057	Weflen, L.C.	ZO046	Yurkovic, A.N.	BE042
Toupin, C.G.	ME047	Weidle Jr., G.F.	CS308T	Zakharenko, K.D.	CS307T
Towns, J.D.	EN037	Weirather, S.J.	MI059	Zaleski, M.T.	EN301T
Tran, J.	ME025	Weis, R.P.	EN013	Zanon, E.	ZO308T
Treitel, J.A.	EN077	Weissman, J.D.	ME005	Zelkowitz, A.M.	MI004
Troyer, R.L.	ME312T	Werbeck, J.L.	ME045	Zelnio, C.E.	CS014
Tsai, E.	BI305T	Wessel, M.R.	ME001	Zhabin, V.S.	EA304T
Tubbs, C.D.	BO311T	West, S.J.	MI307T	Zhang, K.	BI012
Tuck, D.	EV035	Wetherald, B.T.	EN306T	Zhang, Y.	EN308T
Turner, I.R.	MA016	Wherley, L.M.	MI037	Zheng, Y.	ZO305T
Turner, K.D.	EV313T	Wiandany, B.	ME313T	Zhu, J.	EV311T
Turner, R.N.	BO045	Wiersma, H.I.	BO001	Zibetti, S.	BO309T
Tuxhorn, B.R.	EV049	Wiersma, J.A.	PH004	Ziegler, S.B.	EN073
Twilley, C.S.	ME088	Wilkerson, V.L.	EV037	Ziraldo, C.R.	MI050
Ubkeaw, S.	ZO309T	Wilkes, K.D.	CH306T	Zlotina, N.S.	CH022
Ulland, A.D.	BO019	Wilkins, K.L.	EV075	Zmiaikou, D.	MA015

Zoller, S.M.
Zou, J.Y.
Zuniga, H.J.
Zurat, M.J.

ME032
MA007
EA302T
EN083

FINALIST STATISTICS

CATEGORY	TOTAL FINALISTS	PREV ISEF	-- SEX --		----- GRADE -----			
			M	F	9	10	11	12
Behavioral and Social Sciences	96	11	39	57	13	14	34	35
Biochemistry	90	12	42	48	4	12	30	44
Botany	88	10	50	38	15	22	22	29
Chemistry	69	13	30	39	4	13	22	30
Computer Science	69	12	59	10	4	14	21	30
Earth and Space Sciences	59	8	29	30	12	7	20	20
Engineering	123	18	104	19	15	26	25	57
Environmental Sciences	162	42	70	92	23	36	41	62
Gerontology	23	7	9	14	3	7	3	10
Mathematics	76	7	52	24	4	18	26	28
Medicine and Health	126	16	43	83	12	14	36	64
Microbiology	104	24	31	73	11	24	27	42
Physics	63	7	47	16	15	10	15	23
Zoology	71	15	28	43	5	14	16	36
Team Project Finalists*	374	30	182	192	37	63	97	177
---- TOTAL ----	1219	202	633	586	140	231	338	510

* There are 165 total team projects.