

**48<sup>TH</sup> National Junior Science & Humanities Symposium – Student Research Session**

**Session I – Environmental sciences/Earth & space (Amphitheater)**

*Moderator: Bernie Kilonsky, University of Hawaii*

4/30/10 <b>9:00:00 AM</b> 9:18:00 AM	Tsunami Mitigation through the Use of a Near-Shore Undersea Trench: A Physical and Mathematical Model	<b>Julia H. Benson</b> , Deerfield HS, Deerfield, IL <b>Illinois JSHS</b> ; TMS: Judi Luepke, DeerPark, HS; Dr. Michael Benson, Feinberg School of Medicine, Northwestern University
4/30/10 <b>9:20:00 AM</b> 9:38:00 AM	Prototype Solar-Powered Liquid Piston Engine	<b>Kelly M. Kleier</b> , Notre Dame Academy, Ft. Wright, KY: <b>Kentucky JSHS</b> ; TMS: Sister Mary Ethel Parrott, Notre Dame Academy
4/30/10 <b>9:40:00 AM</b> 9:58:00 AM	A Tsunami Hazard Assessment in Discovery Bay, Washington	<b>Marley E. Iredale</b> , Sequim HS, Sequim, WA <b>Washington JSHS</b> ; TMS: Ron Toganazzini, Toganazzini and Associates
4/30/10 <b>10:00:00 AM</b> 10:18:00 AM	The Spatial Variability of Nutrients in Canarsie Piers, Jamaica Bay, NY	<b>Y-Lan L. Nguyen</b> , HS for Health Professions & Human Services, NY City, NY <b>New York City (Metro) JSHS</b> ; TMS: Dr. Ratan Dhar, York College
4/30/10 <b>10:40:00 AM</b> 10:58:00 AM	Mercury Contaminants in Humpback Whitefish and Least Ciscoes	<b>Emily E. Magnuson</b> , West Valley HSI, Fairbanks, AK <b>Alaska JSHS</b> ; TMS: Angela Matz, US Fish and Wildlife Services; Cyndie Beale, West Valley HS
4/30/10 <b>11:00:00 AM</b> 11:18:00 AM	An Innovative Method to Evaluate the Effects of the Aquatic Environment on the Chemotaxis of the Amphibian Pathogen <i>Batrachochytrium dendrobatidis</i>	<b>Scott P. Boisvert</b> , Basha HS, Chandler, AZ <b>Arizona JSHS</b> ; TMS: Christina Jahr, Basha HS; Dr. Elizabeth Davidson, Arizona State University
4/30/10 <b>11:20:00 AM</b> 11:38:00 AM	Acid Mine Drainage Remediation: A Novel Approach Phase II	<b>John T. Barnes</b> , Northwestern HS, Kokomo, IN <b>Indiana JSHS</b> ; TMS: Patricia Zeck, Northwestern HS
4/30/10 <b>11:40:00 AM</b> 11:58:00 AM	Gulf Hypoxic Zones: Examining Gulf Column Transfer Coefficients and Dual Source Contributions	<b>Bonnie J. McLindon</b> , St. Joseph's Academy Baton Rouge, LA <b>Louisiana JSHS</b> ; TMS: Linda Messina, St. Joseph's Academy; Louis Thribodeaux, Louisiana State University
4/30/10 <b>1:40:00 PM</b> 1:58:00 PM	Bioremedial Effects of <i>Pleurotus ostreatus</i> on Endocrine-Disrupting Contaminants	<b>Spencer J. Kent</b> , Albuquerque HS, Albuquerque, NM <b>New Mexico (Southwest) JSHS</b> ; TMS: Joan Newsom, Albuquerque HS
4/30/10 <b>2:00:00 PM</b> 2:18:00 PM	Toxicity of Surrogate Organoclay Surfactant to Straight-Chain Hydrocarbon-Degrading Microbial Isolates and Potential for Organoclay Biodegradation	<b>Laurie A.</b> , Oregon Episcopal School, Portland, OR <b>Oregon JSHS</b> ; TMS: Dr. Pameley H. Pritchard, Dr. Peter Langley & Dr. Bill Lamb, Oregon Episcopal School
4/30/10 <b>2:20:00 PM</b> 2:38:00 PM	Design and Development of a Portable Light Trap for Sampling Brachyuran Crab Larvae	<b>Heather M. Eberhart</b> , Bellarmine Preparatory School, Tacoma, WA <b>Washington JSHS</b> ; TMS: Ron Nilsen, Bellamine Preparatory School
4/30/10 <b>2:40:00 AM</b> 2:58:00 AM	The First Quantitative Projection of Extreme Precipitation: The Making of a Multi-Model Ensemble	<b>Akshar Wunnava</b> , Thomas Jefferson HS for Science & Technology, Chantilly, VA <b>Maryland JSHS</b> ; TMS: Dr. Jian Lu, Center for Ocean, Land, and Atmosphere

\* Teacher/Mentor/Sponsor (TMS)

**48<sup>TH</sup> National Junior Science & Humanities Symposium – Student Research Session**  
**Session 2 –Life science (Brookside A)**  
 Moderator: Laura Hobson, Arizona State University

4/30/10 <b>9:00:00 AM</b> 9:18:00 AM	The Potential Allelopathic Suppression of Kudzu ( <i>Pueraria montana</i> )	<b>Mason C. McFarland</b> , Jefferson County International Baccalaureate School, Birmingham, AL <b>Alabama JSHS</b> ; TMS: Dr. Catherine Shields, Jefferson County International Baccalaureate School
4/30/10 <b>9:20:00 AM</b> 9:38:00 AM	The Ability of Herbs to Inhibit the Growth of <i>Escherichia coli</i>	<b>Erin Schwartz</b> , Bitburg HS, Bitburg <b>DoD Dependent Schools (Europe) JSHS</b> ; TMS: Susan Schwartz, Bitburg HS
4/30/10 <b>9:40:00 AM</b> 9:58:00 AM	The Preference In Predation Of The Native Aquatic Bug <i>Anisops Nasutus</i> On The Larvae Of Four Mosquito Species Found In American Samoa.	<b>Faalolo'i Te'o</b> , Tafuna HS, Pago Pago <b>Hawaii JSHS</b> ; TMS: Dr. Joserose S. Jyothibhavan, Tafuna HS
4/30/10 <b>10:00:00 AM</b> 10:18:00 AM	The Effects of Food Deprivation in Agonistic Contests between Male Juvenile House Crickets, <i>Acheta Domesticus</i>	<b>Robert K. Pak</b> , Valley High School, Clive, IA <b>Iowa JSHS</b> ; Teacher/Mentor/Sponsor: Jane Busby, Valley HS
4/30/10 <b>10:40:00 AM</b> 10:58:00 AM	Long Term Study of the Biodiversity in a Rocky Shore Community in Puerto Rico	<b>Natalia Lopez</b> , Antilles HS, Gurabo, PR <b>Puerto Rico JSHS</b> ; TMS: Iliada Sierra, Antilles HS
4/30/10 <b>11:00:00 AM</b> 11:18:00 AM	My Space! A Study of Gause's Law of Competitive Exclusion with Upper Ohio River Valley Crayfish.	<b>Vincent J. O'Leary</b> , Central Catholic HS, Wheeling, WV <b>West Virginia JSHS</b> ; TMS: Professor Zachary Loughman, West Liberty University
4/30/10 <b>11:20:00 AM</b> 11:38:00 AM	Small Mammal Population Densities in Relation to Depth of Snow and Accessibility of Subnivean Space in Denali	<b>Julia Brice</b> , West Valley HSI, Fairbanks, AK <b>Alaska JSHS</b> ; TMS: Cynthia Beale, West Valley HS; Melanie Flamme
4/30/10 <b>11:40:00 AM</b> 11:58:00 1M	The Effect of Ambient Temperature and Dew Point on the Body Temperature of Sled Dogs , Bayfield, WI	<b>Stephanie R. LaPointe</b> , Bayfield HS, WI <b>Western Wisconsin, Upper Michigan JSHS</b> ; TMS: Richard Erickson, Bayfield HS
4/30/10 <b>1:40:00 PM</b> 1:58:00 PM	A Comparative Study of the Postural Balance and Righting Reactions of <i>Calcinus seurati</i> and <i>Calcinus laevimanus</i> Marine Hermit Crabs for Applications to Robots	<b>Roya A. Sabri</b> , Kealakehe High, Kailua Kona, HI <b>Hawaii JSHS</b> ; TMS: Sharon Chern, Kealakehe High
4/30/10 <b>2:00:00 PM</b> 2:18:00 PM	Environmental Products: Mean or Green	<b>Nicole Perry</b> , MC Perry, HS, FPO, AE <b>DoD Dependent Schools (Pacific) JSHS</b> ; TMS: Suzette Lopez, MC Perry HS
4/30/10 <b>2:20:00 PM</b> 2:38:00 PM	The Effects of Increased Carbon Dioxide on Terrestrial Plant Growth	<b>Alexander Gary</b> , Aviano HS, Aviano US Air Force Base <b>DoD Dependent Schools (Europe) JSHS</b> ; TMS: Brian P. Martin
4/30/10 <b>2:40:00 PM</b> 2:58:00 PM	The Effect of Light Waves on Photosynthetic Pigment Levels in <i>Volvox globator</i>	<b>Jacob N. Pardee</b> , Carter County HS, Ekalaka, MT <b>Wyoming, Eastern Colorado JSHS</b> ; TMS: Linda Rost, Carter County HS; Dr. Bob Sharrock, Montana State University; Dr. Tracy Sterling, Montana

\* Teacher/Mentor/Sponsor (TMS)

**48<sup>TH</sup> National Junior Science & Humanities Symposium – Student Research Session**  
**Session 3 – Life sciences (Brookside B)**

*Moderator: Dave Grabowski, St. Mary of the Woods College*

4/30/10 <b>9:00:00 AM</b> 9:18:00 AM	Antimicrobial Properties of Metals	<b>Alexis M. Mills</b> , Guam HS, Agana Heights, GU <b>DoD Dependent Schools (Pacific) JSHS</b> ; TMS: Suzette Lopez, Edgren HS; Denise Chaco, Guam HS; Kurt, Guam HS
4/30/10 <b>9:20:00 AM</b> 9:38:00 AM	Genetic Analysis of <i>Anaplasma phagocytophilum</i> DNA Isolated from Ticks Collected near La Crosse, Wisconsin	<b>Mohandas K. Pillai</b> , Central HS, La Crosse, WI <b>Western Wisconsin, Upper Michigan JSHS</b> ; TMS: Michael Bechtel, Central HS, La Crosse; WI Dr. Steven Callister, Gundersen Lutheran Health Science Center
4/30/10 <b>9:40:00 AM</b> 9:58:00 AM	Geminin Mutant Reveals The Mechanism To Inhibit Dna Re-replication	<b>Marissa A. Suchyta</b> , University of Chicago Lab Schools, Chicago, IL <b>Illinois (Chicago) JSHS</b> ; TMS: Sharon Housinger, University of Chicago Laboratory Schools; Dr. Thomas McGarry, Northwestern University, Feinberg School of Medicine
4/30/10 <b>10:00:00 AM</b> 10:18:00 AM	energize: Optimization of a Process to Determine Algal Species Present in a Sample through Single-Strand Conformational Polymorphism Prior to Fermentation into Algal Biofuels	<b>Charlotte S. Kirk</b> , Westville HS, Westville, OK <b>Kansas-Nebraska-Oklahoma JSHS</b> ; TMS: Jolene Faddis, Westville HS
4/30/10 <b>10:40:00 AM</b> 10:58:00 AM	Differentiation of Pluripotent Stem Cells - Comparison between Induced Pluripotent Stem Cells and Embryonic Stem Cells	<b>Heejo Choi</b> , River Hill HS, Clarksville, MD <b>Maryland JSHS</b> ; TMS: Barbara Jewett, River Hill HS; Dr. Sharon Gerech, Department of Chemical and Biomolecular Engineering, Johns Hopkins University; Sravanti Kusuma, Department of Biomedical Engineering, Johns Hopkins University
4/30/10 <b>11:00:00 AM</b> 11:18:00 AM	Gating of a Cyclic Nucleotide-Modulated KcsA-MloK1 Ion Channel Chimera	<b>Amy Z. Chen</b> , Millburn HS, Millburn, NJ <b>New Jersey (Northern) JSHS</b> ; TMS: Mentor: Dr. Crina Nimigean, Weill Cornell Medical College; Teacher: Dr. Paul Citrin, Millburn HS
4/30/10 <b>11:20:00 AM</b> 11:38:00 AM	Allatostatin C-type Peptides in the Nervous System of <i>Homarus americanus</i>	<b>Evelyn S. Dickinson</b> , Mt. Ararat, Bowdoin, ME <b>Northern New England JSHS</b> ; TMS: Mrs. Towle, Mt. Ararat HS; Andrew Christie, Mount Desert Island Biological Laboratory
4/30/10 <b>11:40:00 AM</b> 11:58:00 AM	Rapid Quantification of Salicylic Acid (via Biosensor) in <i>npr1</i> Background <i>Arabidopsis thaliana</i> Ethyl Methanesulfonate Mutants	<b>Deepak Sathyanarayan</b> , Spruce Creek HS, Ormond Beach, FL <b>Florida JSHS</b> ; TMS: Dr. Zhonglin Mou, Univ of Florida; Dr. Ram Nayar, Daytona State College; Dr. Andrea White, Spruce Creek HS
4/30/10 <b>1:40:00 PM</b> 1:58:00 PM	Interactions between Cohesion and Replication Factor Complexes in Yeast	<b>Anisha Garg</b> , Emmaus HS, Emmaus, PA <b>Pennsylvania JSHS</b> ; TMS: Dr. Patricia Waller, Emmaus HS
4/30/10 <b>2:00:00 PM</b> 2:18:00 PM	Differentiation of Bovine Adipose Derived Adult Stem Cells	<b>Melissa S. McDowell</b> , Saint Joseph's Academy <b>Baton Rouge, LA; Louisiana JSHS</b>
4/30/10 <b>2:20:00 PM</b> 2:38:00 PM	Novel Peptide Recognition As Determined By The FLS2 Gene Of <i>Arabidopsis thaliana</i>	<b>Mikayla Thompson</b> , Middleton HS, Middleton, WI <b>Wisconsin JSHS</b> ; TMS: Anne DeMark Thompson, Parent; Laura Helft, University of Wisconsin-Madison

\* Teacher/Mentor/Sponsor (TMS)

**48<sup>TH</sup> National Junior Science & Humanities Symposium – Student Research Session**  
**Session 4 – Medicine & health/Behavioral (Forest Glen)**  
 Moderator: Julie Angle, Oklahoma State University

4/30/10 <b>9:00:00 AM</b> 9:18:00 AM	The Effect of Phonemes, Syntax, and Semantics on the Brain's Ability to Solve Jumbled Words	<b>Aaron M. Yin, April Owen, Annice Steadman</b> Little Rock Central HS, Little Rock, AR; <b>Arkansas JSHS</b>
4/30/10 <b>9:20:00 AM</b> 9:38:00 AM	The Effect of Primary Colors vs. Secondary Colors in the Memory Retention: A Study of Children from 5th and 6th Grade of Two Private Schools in Different Regions of Puerto Rico and Special Education Children (3rd Phase)	<b>Hector Martinez</b> , Guamani Private School, Patillas, PR <b>Puerto Rico JSHS</b> ; TMS: Jorge Rodriguez, Guamani Private School
4/30/10 <b>9:40:00 AM</b> 9:58:00 AM	Targeting the MAPK Signaling Cascade and Its Effects on Trastuzumab Resistance in Metastatic Breast Cancers	<b>Emily R. Summerbell</b> , Collins Hill HS, Suwanee, GA <b>Georgia JSHS</b> ; TMS: Dr. Rita Nahta, Emory University, Whiship Cancer Institute; Laura Herbig, Collins Hill HS
4/30/10 <b>10:00:00 AM</b> 10:18:00 AM	Glucosaminyl (N-acetyl) Transferase 2 (GCNT2) Gene Expression Highly Influences Breast Cancer Metastasis and Promotes an Epithelial-Mesenchymal Transition (EMT)	<b>Sherwin Z. Wu</b> , Detroit Country Day School <b>Michigan (Southeastern) JSHS</b> ; TMS: Dr. Haijun Zhang Ph.D., Karmanos Cancer Center
4/30/10 <b>10:40:00 AM</b> 10:58:00 AM	The Effect of Pseudophosphorylated Tau Protein in the Absence of Fibrillar Beta-Amyloid	<b>Robert G. Dorfman</b> , Freehold HS, Freehold, NJ <b>New Jersey (Monmouth) JSHS</b> ; TMS: Susan Seigel, Freehold High School
4/30/10 <b>11:00:00 AM</b> 11:18:00 AM	Polyamine Rescue in Neuroblastoma	<b>Kelly-Ann Corrigan</b> , Saint Francis Preparatory, Flushing, NY <b>New York City (Metro) JSHS</b> ; TMS: Dr. Michael Hogarty, Children's Hospital of Philadelphia; Mary Ann Spicijaric, & Frances Jimenez, Saint Francis Preparatory
4/30/10 <b>11:20:00 AM</b> 11:38:00 AM	Understanding Cardiac Arrhythmias through Cellular Automata	<b>Niral Sheth</b> , Farragut HS, Knoxville, TN; Gabriel Garcia, Farragut HS, Knoxville, TN <b>Tennessee JSHS</b> ; TMS: Xiaopang Zhao, University of Tennessee
4/30/10 <b>11:40:00 AM</b> 11:58:00 AM	Immunocytochemical Characterization of Mouse Brain Explants in an In Vitro Model of Schizophrenia	<b>Harraz MohdReza</b> , Union Colony Preparatory School, Evans, CO; <b>Wyoming, Eastern Colorado JSHS</b> ; TMS: Dr. Mark Thomas, University of Northern Colorado; Catherine M. Hoyt, Union Colony Preparatory School
4/30/10 <b>1:40:00 PM</b> 1:58:00 PM	Slit2-N Enhances Lung Epithelial Barrier Function in Mouse Lung Epithelial (MLE-12) Cells	<b>Luming Chen</b> , West HS, Salt Lake City, UT <b>Intermountain JSHS</b> ; TMS: Professor Dean Li, University of Utah; Nyall London, University of Utah; Maren Hansen, West HS
4/30/10 <b>2:00:00 PM</b> 2:18:00 PM	Synergistic Effect of Bcl-2 Inhibitors and Bioflavonoids on Apoptogenesis and Angiogenic Inhibition in Human Neuroblastoma	<b>Anurag Deeconda</b> , Spring Valley HS, Columbia, SC <b>South Carolina JSHS</b> ; TMS: Michelle Spigner, Spring Valley HS
4/30/10 <b>2:20:00 PM</b> 2:38:00 PM	Nanoparticle-amplified Immunobiosensor Enables Excellent Sensitivity In Rapid Detection Of Viable <i>E. Coli</i> O157:h7	<b>Rebecca J. Ye</b> , Bangor HS Bangor, ME <b>Northern New England JSHS</b> TMS: Cary James, Bangor HS

Due to the large number of papers in Medicine/Behavioral, a first round will be held on Friday.  
 Three finalists from each session will advance to a final round on Saturday.

\* Teacher/Mentor/Sponsor (TMS)

**48<sup>TH</sup> National Junior Science & Humanities Symposium – Student Research Session**  
**Session 5 – Medicine & health/Behavioral (Glen Echo)**  
 Moderator: Roger Martin, University of California at Berkeley

4/30/10 <b>9:00:00 AM</b> 9:18:00 AM	Bisphenol-A: A Dangerous Chemical with Multiple Modes of Action	<b>Wendi Oppenheim</b> , Pine Crest School, Weston, FL; <b>Florida JSHS</b> ; TMS: Ms. Gordinier, Pine Crest School
4/30/10 <b>9:20:00 AM</b> 9:38:00 am	Role Of TSPYL1, FGIF, And MTF-1 in $\gamma$ -globin Gene Activation for Treatment of Hemoglobinopathies: An In Vivo Study In Novel Binary Transgenic Mouse Models	<b>Prarthana J. Dalal</b> , Shawnee Mission East HS <b>Prairie Village, KS; Kansas-Nebraska-Oklahoma JSHS</b> ; TMS: Cole Ogdon, Shawnee Mission East HS; Kenneth Peterson, University of Kansas Medical Center
4/30/10 <b>9:40:00 AM</b> 9:58:00 AM	Novel Spheroid Cultures of Hepatocytes for Maximized Liver-specific Function	<b>Cathy H. Chen, Alex J. Mullen</b> , Oxford HS, Oxford, MS; <b>Mississippi JSHS</b> ; TMS: James Reidy, Oxford HS
4/30/10 <b>10:00:00 AM</b> 10:18:00 AM	The Effects of Interleukin-17 on Gene Expression in Human Endothelial Cells: Implications of the Pathway for Leukocyte Recruitment during Multiple Sclerosis	<b>Julie Y. Qiu</b> , John Jay HS, Cross River, NY <b>New York (Upstate) JSHS</b> ; TMS: Dr. Li-Hsien Wang, Regeneron Pharmaceuticals; Annmarie Lipinsky, Jodi Riordan, John Jay HS
4/30/10 <b>10:40:00 AM</b> 10:58:00 AM	Reducing Troponin Turnaround Time Through the Application of Lean/Six Sigma Processes and Evaluating Public Response Time to Heart Attack Symptoms	<b>Karen A. Krutzer</b> , West Geauga HS, Chesterland, OH; <b>Ohio JSHS</b> ; TMS: Anthony Warmuth, Sherri Gross, Hillcrest Hospital/Cleveland Clinic Health Systems
4/30/10 <b>11:00:00 AM</b> 11:18:00 AM	Effect of Surface Texture of Bioglass on Osteoblast Activity	<b>Raina H. Jain</b> , Freedom HS, Bethlehem, PA <b>Pennsylvania JSHS</b> ; TMS: Linda Frederick, East Hills Middle School
4/30/10 <b>11:20:00 AM</b>	Regulation of the Latent-lytic Switch of Epstein-Barr Virus by MiRNAs and TGF- $\beta$	<b>Iris Xu</b> , James Madison Memorial HS, Madison <b>Wisconsin JSHS</b> ; TMS: Janet Mertz, Shreyashi Das, Amy Ellis, McArdle Laboratory for Cancer Research
4/30/10 <b>11:40:00 AM</b> 11:58:00 AM	$\alpha 6\beta 4$ Integrin Signaling Mediates Human Papillomavirus Type 16 Entry in Keratinocytes	<b>Weitao Qiang</b> , Libertyville HS, Libertyville, IL <b>Illinois JSHS</b> ; TMS: Kurt Anderson, Libertyville High School; Dr. Patricio I Meneses, Rosalind Franklin Univ of Medicine & Science
4/30/10 <b>1:40:00 PM</b> 1:58:00 PM	DNA Binding and Cleaving of 1,8-Naphthalimide Linked Nitrogen Onium Salts: Towards the Development of a Novel Photodynamic Therapy Reagent	<b>Malika V. Shettar</b> , St. Andrew's Episcopal School, Ridgeland, MS <b>Mississippi JSHS</b> ; TMS: Sandra Hindsman, St. Andrew's Episcopal School; Wolfgang Kramer, Millsaps College
4/30/10 <b>2:00:00 PM</b> 2:18:00 PM	Early Detection Of Breast Cancer: Using Gold Nanoparticles To Detect a Single Circulating Tumor Cell In A Photoacoustic Cytometry System	<b>Sidhant Misra</b> , Rock Bridge HS, Columbia, MO <b>Missouri JSHS</b> ; TMS: Christina Roberson, Columbia Area Career Center
4/30/10 <b>2:20:00 PM</b> 2:38:00 PM	Environmental Toxin 4-Nonylphenol and Autoimmune Diseases: Using DNA Microarray to Examine Genetic Markers of Cytokine Activity	<b>Celline Kim</b> , Manhasset HS, Manhasset, NY <b>New York (Long Island) JSHS</b> ; TMS: Peter Guastella, Manhasset HS; Dr. Patrick Cadet, State University of New York/College at Old Westbury
4/30/10 <b>2:40:00 PM</b> 2:58:00 PM	Can Secreted Proteins From Whole-cell Mycobacteria Be Detected Using MALDI-TOF Mass Spectrometry?	<b>Timothy D. Trippel</b> , Marian HS, Mishawaka, Indiana JSHS; TMS: Ken Andrzejewski, Marian HS; Dr. Matthew Champion, Univ of Notre Dame; Dr. David Grabowski, St. Mary of-the-Woods College

Due to the large number of papers in Medicine/Behavioral, a first round will be held on Friday.

Three finalists from each session will advance to a final round on Saturday.

\* Teacher/Mentor/Sponsor (TMS)

**Saturday, May 1, 2010**  
**48<sup>TH</sup> National Junior Science & Humanities Symposium – Student Research Session**  
**Session 6 – Engineering (Brookside A)**  
*Moderator: Commander Mark Murray, U.S. Naval Academy*

5/1/10 <b>9:00:00 AM</b> 9:18:00 AM	Testing the Aerodynamic Efficiency of an Aerofoil with the Addition of a Solar Cell Panel Substitute	<b>Colin Shipley, Maximilian Schneider,</b> King Philip Regional HS, Wrentham, MA; <b>Southern New England JSHS;</b> TMS: Ann Lambert, King Philip Regional HS
5/1/10 <b>9:20:00 AM</b> 9:38:00 AM	Biomechanically Assisting the STS Movement	<b>Spencer Wilson,</b> Colquitt County HS, Moultrie, GA: <b>Georgia JSHS;</b> TMS: Tommy Hall, CCHS
5/1/10 <b>9:40:00 AM</b> 9:58:00 AM	A New Scientific Device for Electrophysiological Measurements of Cultured Heart Cells	<b>William H. Soller,</b> School Without Walls Senior High School, Washington, DC <b>Greater Washington, D.C. Area JSHS;</b> TMS: Dr. Matthew Kay, Huda Asfour, George Washington University; Matthew Ambrosio, School Without Walls Senior High School
5/1/10 <b>10:00:00 AM</b> 10:18:00 AM	Warning about Warming: Innovative Fuel Cells for the 21st Century – A Performance Study of the Proton Exchange Membrane, Reversible, and Direct Methanol Fuel Cells Under Multiple Operating Conditions	<b>Pavane Gorrepati,</b> Rivermont Collegiate, Davenport, IA: <b>Iowa JSHS;</b> TMS: Linda Hampton, Rivermont Collegiate
5/1/10 <b>10:40:00 AM</b> 10:58:00 AM	The Effects of a Cooling/ Suspension Apparatus when Retrofitted into a U.S. Combat Soldier's Helmet	<b>Jacob A. Byrne,</b> Camdenton HS, <b>Missouri JSHS;</b> TMS: Christopher Reeves, Osage Beach, MO: Camdenton HS; Kimberly Griggs, Camdenton HS
5/1/10 <b>11:00:00 AM</b> 11:18:00 AM	The Manipulation Of Piezoelectric Film For Energy Harvesting	<b>Alyssa F. Blumenthal,</b> Long Beach HS, Lido Beach, NY: <b>New York (Long Island) JSHS;</b> TMS: Cody Onufrock, Long Beach HS; Veronica Ade, Long Beach HS
5/1/10 <b>11:20:00 AM</b> 11:38:00 AM	The Impact of Wind Turbine Generators on Sound Levels and Aerodynamic Flow	<b>Matthew F. Miller,</b> Western Alamance HS, Elon, NC: <b>North Carolina JSHS;</b> TMS: David Vernon, Western Alamance HS
5/1/10 <b>11:40:00 AM</b> 11:58:00 AM	Comparison of Fanwing Configuration Efficiency	<b>Patrick Lowe,</b> Palos Verdes Peninsula HS, Rolling Hills Estates, CA: California (Southern) JSHS; TMS: Peter Starodub, Palos Verdes Peninsula HS
5/1/10 <b>1:20:00 PM</b> 1:38:00 PM	Development of a Novel High Efficiency Photo-thermovoltaic Concentrator Solar Cell	<b>Rounok Joardar,</b> Plano West Senior High, Plano, TX <b>Texas JSHS</b>
5/1/10 <b>1:40:00 PM</b> 1:58:00 PM	1 Sun + 8 Bits = H2O: Digitally Optimizing "Smart" Photovoltaics for a Water Distillation Application	<b>Nicholas M. Christensen,</b> Wetumpka HS, Wetumpka, AL: <b>Alabama JSHS;</b> TMS: Virginia Vilardi, Wetumpka HS; John H. Jacobs, JouleNet
5/1/10 <b>2:00:00 PM</b> 2:18:00 PM	Thermal Simulation Of Temperatures In Vtb Through Thermal Resistance Circuit Equivalent	<b>Felicio Stratmann,</b> Dutch Fork HS, Irmo, SC <b>South Carolina JSHS;</b> TMS: Dr. Roger Dougal, University of South Carolina Department of Electrical Engineering; Barry Lindler, Dutch Fork HS
5/1/10 <b>2:20:00 PM</b> 2:38:00 PM	Geological Storage of Carbon Dioxide	<b>Briana C. Breault,</b> Bishop Donahue HS, Moundsville, WV; <b>West Virginia JSHS</b> TMS: Dr. Ronald W. Breault; Dr. Robert Ball, Bishop Donahue HS

\* Teacher/Mentor/Sponsor (TMS)

**48<sup>TH</sup> National Junior Science & Humanities Symposium – Student Research Session**  
**Session 7 – Mathematics & Computer Science (Brookside B)**

Moderator: Kathleen Kaplan, Air Force Office of Scientific Research

5/1/10 <b>9:00:00 AM</b> 9:18:00 AM	Generalized Nonaveraging Integer Sequences	<b>Dennis C. Tseng</b> , William Mason HS, Mason, OH: <b>Ohio JSHS</b> ; TMS: Nan Li, Massachusetts Institute of Technology
5/1/10 <b>9:20:00 AM</b> 9:38:00 AM	On the Period Lengths of the Parallel Chip-Firing Game	<b>Tian-Yi D. Jiang</b> , North Carolina School of Science and Mathematics, Raleigh, NC; <b>North Carolina JSHS</b> ; TMS: Yan Zhang, Massachusetts Institute of Technology; Dr. Daniel Teague, Leslie Brinson, North Carolina School of Science and Mathematics
5/1/10 <b>9:40:00 AM</b> 9:58:00 AM	Mathematical Modeling of Feedback Regulation in Multistage Cell Lineages	<b>Brandon K. Sim</b> , Diamond Bar HS, Diamond Bar, CA: <b>California (Southern) JSHS</b> ; TMS: Dr. Qing Nie, University of California Irvine
5/1/10 <b>10:00:00 AM</b> 10:18:00 AM	Voting Systems: An Outcome Analysis Phase 2	<b>Vikash E. Hypio</b> , Hotchkiss HS, Hotchkiss CO: <b>Intermountain JSHS</b> ; TMS: Dr. Douglas Horton, Hotchkiss HS
5/1/10 <b>10:40:00 AM</b> 10:58:00 AM	Temporal Optimization of Meeting Locations through a Web-based Application	<b>Joshua Ma</b> , High Technology High School, Lincroft, NJ: <b>New Jersey (Monmouth) JSHS</b> ; TMS: Michael T. Roche, High Technology HS
5/1/10 <b>11:00:00 AM</b> 11:18:00 AM	Deligne Categories and Representation Theory in Complex Rank	<b>Akhil Mathew</b> , Madison HS, Madison, NJ <b>New Jersey (Northern) JSHS</b> ; TMS: Marcia Prill, Madison HS; Dr. Pavel Eting, Dustin Clausen, Massachusetts Institute of Technology
5/1/10 <b>11:20:00 AM</b> 11:38:00 AM	A Novel Method for Faster Factorization of Semiprimes PQ Using Weierstrass, Projective Weierstrass, Projective Edwards and Projective Jacobian Elliptic Curves	<b>Aishwarya A. Vardhana</b> , Jesuit HS, Beaverton, OR <b>Oregon JSHS</b> ; TMS: Dr. Peter Montgomery, Microsoft; Dr. John Gorman, Jesuit High School; S.R. Madhu Rao, Mysore University
5/1/10 <b>11:40:00 AM</b> 11:58:00 AM	An Efficiency Study of a Head Controlled Computer Interface Using Embedded Circuitry	<b>Gavin G. Ovsak</b> , Eden Prairie, Hopkins, MN <b>North Central (Minnesota, N. &amp; S. Dakota) JSHS</b>
5/1/10 <b>1:20:00 PM</b> 1:38:00 PM	Two Novel Methods for Precise Image Thresholding	<b>Samuel M. Birch</b> , Boston University Academy, Boston, MA <b>Southern New England JSHS</b> ; TMS: Gary Garber, Boston University Academy
5/1/10 <b>1:40:00 PM</b> 1:58:00 PM	Electric Field Calculation for Fluid Simulation	<b>Yajit K. Jain</b> , Oak Ridge HS, Oak Ridge, TN: <b>Tennessee JSHS</b> ; TMS: Dr. Leonard Gray, Oak Ridge National Laboratory; Tammy Carneim, Oak Ridge HS
5/1/10 <b>2:00:00 PM</b> 2:18:00 PM	Deterministic Lexical Categorization Using Genetic Algorithms	<b>Dru H. Knox</b> , Roanoke Valley Governor's School for Science and Technology, Roanoke, VA: <b>Virginia JSHS</b> ; TMS: Dr. Linda Gooding, Roanoke Valley Governor's School for Science and Technology
5/1/10 <b>2:20:00 PM</b> 2:38:00 PM	Semantic Image Retrieval and Interactive Exploration of Large Image Collections	<b>David C. Liu</b> , Lynbrook HS, San Jose, CA <b>California (Northern &amp; Western Nevada) JSHS</b>
4/30/10 <b>2:40:00 PM</b> 2:58:00 PM	Emotional Models Improve Human-Robot Interaction	<b>Jenny J. Liu</b> , Amity Regional HS, Woodbridge, CT; Connecticut JSHS; TMS: Deborah Day, Amity Regional HS; Professor Brian Scassellati, Yale University

\* Teacher/Mentor/Sponsor (TMS)

**48<sup>TH</sup> National Junior Science & Humanities Symposium – Student Research Session**  
**Session 8 – Physical sciences (Glen Echo)**

Moderator: Alisa Wickliff, University of North Carolina, Charlotte

5/1/10 <b>9:00:00 AM</b> 9:18:00 AM	Nano-Graphene Laser Limiting	<b>Boshan Zhao</b> , Little Rock Central HS, Little Rock, AR; <b>Arkansas JSHS</b> ; TMS: Melissa Donham, Little Rock Central HS; Wei Zhao, University of Arkansas at Little Rock
5/1/10 <b>9:20:00 AM</b> 9:38:00 AM	Characterization of <i>Jatropha curcas</i> Oil and Glycerol for Biofuel Production	<b>Neeharika Krothapalli</b> , Farmington HS, Unionville, CT: <b>Connecticut JSHS</b> ; TMS: Antonella Bona, Farmington HS
5/1/10 <b>9:40:00 AM</b> 9:58:00 AM	Properties of Interfering Hydraulic Jumps	<b>Mark G. Specht</b> , Evanston Township HS, Evanston, IL: <b>Illinois (Chicago) JSHS</b> ; TMS: Mark Vondracek, Evanston Township HS
5/1/10 <b>10:00:00 AM</b> 10:18:00 AM	Traveling the Interplanetary Superhighway: An Autonomous Spacecraft Navigation System	<b>Erika A. DeBenedictis</b> , Albuquerque Academy, Albuquerque, NM <b>New Mexico (Southwest) JSHS</b> ; TMS: Kiran Manne, Albuquerque Academy; Erik DeBenedictis, Sandia National Laboratory
5/1/10 <b>10:40:00 AM</b> 10:58:00 AM	Medicinal Applications of Bis(trimethylsilyl)acetylene in Copper(I)-Catalyzed Azide-Alkyne "Click" Chemistry	<b>Daniel Mokhtari</b> , Breck School, Minneapolis, MN <b>North Central JSHS</b> ; TMS: Lois Fruen, Breck School; Dr. Ronald Brisbois, Macalester College
5/1/10 <b>11:00:00 AM</b> 11:18:00 AM	Frequency and Energy of Dark Matter Annihilations	<b>William C. Huffman</b> , Loudoun County Public Schools Academy of Science, Sterling, VA <b>Virginia JSHS</b> ; TMS: Dr. Daniel Crowe, Loudoun County Public Schools Academy of Science; Dr. Jeremy Schnittman, Johns Hopkins University
5/1/10 <b>11:20:00 AM</b> 11:38:00 AM	Nanocrystalline Dye-sensitized Solar Cells based on Organic Dyes: An Analysis using New, Low-Cost D-SCOPE	<b>Shyamal Buch</b> , Vista del Lago HS, Folsom, CA: <b>California (Northern &amp; Western Nevada) JSHS</b> ; TMS: Gina Miller, Vista del Lago HS
5/1/10 <b>11:40:00 AM</b> 11:58:00 AM	Annealing of CuInAl Precursors During Two Step Absorber Layer Deposition for CIAS Thin Film Solar Cells	<b>Ian M. Schneider</b> , Byram Hills HS, Armonk, NY: <b>New York (Upstate) JSHS</b> ; TMS: Dr. Harry Efstathiadis, College of Nanoscale Science and Engineering; Keith, Byram Hills HS
5/1/10 <b>1:20:00 PM</b> 1:38:00 PM	The Geometry of Active Galactic Nuclei as Evidenced by their Emission Line Spectra	<b>Erika R. Tinley</b> , Sonoran Science Academy, Tucson, AZ: <b>Arizona JSHS</b> ; TMS: Robert Hobbins, Sonoran Science Academy; Dr. Todd Boroson, NOAO
5/1/10 <b>1:40:00 PM</b> 1:58:00 PM	Analyzing the Clustering of Point Sources in the 74 MHz VLSS Survey	<b>John V. Capodilupo</b> , Grand Rapids Catholic Central, Grand Rapids, MI <b>Michigan (Southeastern) JSHS</b> ; TMS: Dr. Angelica de Oliveira-Costa, Harvard-Smithsonian Center for Astrophysics
5/1/10 <b>2:00:00 PM</b> 2:18:00 PM	Engineering a System to Accurately Record Head-Related Transfer Functions from Various Directions (Year 2)	<b>Jordan Zesch</b> , Keystone School, San Antonio, TX <b>Texas JSHS</b>
5/1/10 <b>2:20:00 PM</b> 2:38:00 PM	A New Solar Energy Material Search Strategy	<b>Megan Mercer</b> , Ballard HS, Louisville, KY <b>Kentucky JSHS</b> ; TMS: Robert Baar, Ballard HS

\* Teacher/Mentor/Sponsor (TMS)