



Connecticut Science & Engineering Fair

Connecticut Science Fair Association, Inc.

Connecticut Science & Engineering Fair
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www.ctsciencefair.org

For Immediate Release

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Canton, Danbury, Glastonbury, Greens Farms, Greenwich, Manchester, New Haven, Newtown, Orange, Redding, Ridgefield and Stratford students take Top Honors at the Connecticut Science and Engineering Fair

(See town by town listing of all winners from throughout CT attached. Online at <http://www.ctsciencefair.org/2014/2014-fair-results>)

HAMDEN, Conn., March 15, 2014 – The leaders and innovators of tomorrow's science world are being recognized today by the Connecticut Science and Engineering Fair, where the very best projects amongst the finalists have been chosen for awards for the fair's 66th consecutive year.

Top overall winners will represent the state at the Intel International Science & Engineering Fair (ISEF), May 11 to 16, in Los Angeles. They are:

Grade 9 to 12 *Dominion* Physical Sciences

First Place: **Isabelle Goldstein, a student at Ridgefield High School**, was the top winner of the fair's Physical Sciences category. In a project called *Partitioning gamma-ray sources in Fermi Large Area Telescope observations for spatial and spectral analysis*, she investigated the Weakly Interacting Massive Particle (WIMP) theory for dark matter. To do so, Goldstein partitioned gamma ray sources from M31 (the Andromeda galaxy) from Fermi LAT. Through this, she was able to explore M31's gamma ray halo.

Second Place: Anubhuti Mathur, a student at Glastonbury High School, won second place in the fair's Physical Sciences category for her project, *Synthesis and Characterization of EGCG-PLAGA Conjugates and Mixtures*. The objective of Mathur's project was to develop a biomaterial containing a mixture of EGCG and PLAGA to improve regenerative ability over other biomaterials for use in scaffolds for tissue regeneration. Of principal interest were three types of scaffolds fabricated consisting of both PLAGA and EGCG: microparticles, electrospun mats, and thin films. Mathur is interested in pursuing a patent related to her work.

Grade 9 to 12 Pfizer Life Sciences

First Place: Janine Kerr, a student at Danbury High School, was the top winner of the fair's Life Sciences category. In a project called *Biological Control of the Invasive Eurasian Watermilfoil Using Aquatic Weevils*, Kerr sought out to study Eurasian Water Milfoil (EWM), a destructive and invasive aquatic flora found in almost every state. All current treatment methods for EWM endanger other aspects of the target ecosystem, so Kerr developed a far less harmful way: using insects. In her project, she developed an approach towards controlling EWM using small native aquatic insects that feed on it called milfoil weevils. This finding could have tremendous benefits for the aquatic ecosystems of not only Connecticut but the entire country.

Second Place: Bridget Oei, a student at East Catholic High School in Manchester, placed second in the fair's Life Sciences category. In a project called *Investigating the Efficacy of Bioluminescent Mushroom Panellus Stipticus as a Biosensor to Detect the Toxicity of Water Contaminants*, she explored how a mushroom could help global public health! Oei's research explored the effect of six common water contaminants - CuSO₄, ZnSO₄, NaNO₃, HgCl₂, Atrazine, and Permethrin, on the bioluminescence of the Panellus Stipticus mushroom. Through her work, Oei was able to show that Panellus Stipticus is a viable biosensor, and therefore contributed to finding an economical and robust method of testing water quality.

Third Place: Megan Boyer, a student at Manchester High School, placed third in the fair's Life Sciences category for her project *The Kinematics of Barefoot and Shod Running*. Boyer studied the difference in impact and body adaptation to runners using shoes (the shod runners), and those going barefoot. By determining how different parts of the body react to either circumstance, Boyer laid the foundation for future studies that could assess the likelihood of injury depending on a runner's footwear.

Fourth Place: Emma Goodman, a student at Greenwich High School, placed third in the fair's Life Sciences category for her project *Synergistic Antimicrobial Activity of Manuka Honey and Silver Nitrate*. In her project, Goodman investigated how honey and silver could act as a new antimicrobial treatment with increased effectiveness and a broad spectrum of activity against many different types of bacteria. She found that when paired together, Manuka honey and silver nitrate could be an antimicrobial treatment. With antibiotic resistance an increasing problem, Goodman has made an important contribution to modern medicine.

Grade 9 to 12 Alexion Biotechnology

First Place: Bridget Oei, a student at East Catholic High School in Manchester, won the Alexion Biotechnology category. In a project called *Investigating the Efficacy of Bioluminescent Mushroom Panellus Stipticus as a Biosensor to Detect the Toxicity of Water Contaminants*, she explored how a mushroom could help global public health! Oei's research explored the effect of six common water contaminants - CuSO₄, ZnSO₄, NaNO₃, HgCl₂, Atrazine, and Permethrin, on the bioluminescence of the Panellus Stipticus mushroom. Through her work, Oei was able to show that Panellus Stipticus is a viable biosensor, and therefore contributed to finding an economical and robust method of testing water quality.

Grade 9 to 12 Urban Schools Challenge

First Place: Janine Kerr, a student at Danbury High School, won the fair's Urban Schools Challenge. In a project called *Biological Control of the Invasive Eurasian Watermilfoil Using Aquatic Weevils*, Kerr sought out to study Eurasian Water Milfoil (EWM), a destructive and invasive aquatic flora found in almost every state. All current treatment methods for EWM endanger other aspects of the target ecosystem, so Kerr developed a far less harmful way: using insects. In her project, she developed an approach towards

controlling EWM using small native aquatic insects that feed on it called milfoil weevils. This finding could have tremendous benefits for the aquatic ecosystems of not only Connecticut but the entire country.

Connecticut Academy of Science and Engineering (CASE) provided three awards as well this year:

1st: Isabelle Goldstein (Ridgefield High School) and Janine Kerr (Danbury High School)

2nd: William Tait (Bridgeport Aquaculture Center)

3rd: Maya Geradi (Worthington Hooker Middle School, New Haven)

Other winners in major categories:

Physical Sciences

8th Grade

First Place: Gabriel Mesa of Canton Middle School

Project Title: *Graphene Enhanced Piezoelectric Generator for Environmental Energy Conservation*

7th Grade

First Place: Catherine Herrick of St. Rose of Lima School (Newtown)

Project Title: *The Investigation Of The Presence Of Plastic Microscopic Fibers In Effluent Sewage Water And The Long Island Sound*

Middle School (7th & 8th Grade) Team

First Place: Miriam Kantor and Chana Katz of Southern Connecticut Hebrew Academy (Orange)

Project Title: *Analysis of Prevention and delay of ignition and burn times of synthetic fingernails*

High School Team

First Place: Mahesh Raman and Reed McMurchy of Brunswick School (Greenwich)

Project Title: *The Effect of Temperature, pH, and Dissolved Oxygen on Halophilic Desalination*

Life Sciences

8th Grade

First Place: Owen Petno of Greens Farms Academy

Project Title: *The Effects of Antioxidants on cell regrowth and regeneration in Lumbricus variegatus*

7th Grade

First Place: Kristen Robertson of St. Mark School (Stratford)

Project Title: *Growing Our Future: Using LED Hydroponics to Cultivate Fresh Produce: A Solution for Urban Food Deserts*

Middle School (Grades 7 & 8) Team

First Place: Rachel Kawall and Sophie Edelstein of Worthington Hooker Middle School (New Haven)

Project Title: *Plants on Other Planets: The Effects of Gravity and Atmosphere*

High School Team

First Place: Yiran Zhang and Eli Silvert of Southern CT Invitational Science & Engineering (Redding)

Project Title: *Does Musical Training Affect Multi-Channel Sensory Integration?*

***** See Full List of Winners Attached *****

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