

**Contact:**

Lauren Espin  
Siemens Foundation  
732-590-2182  
[lauren.espin@siemens.com](mailto:lauren.espin@siemens.com)

Lisa Quirindongo  
Dentsu Communications  
203-430-3550  
[lquirindongo@dcinyc.com](mailto:lquirindongo@dcinyc.com)

**RESEARCH ON BRAIN DISORDERS AND THE EVOLUTION OF GALAXIES  
BRINGS STUDENTS CLOSER TO NATION'S HIGHEST SCIENCE HONOR  
FOR HIGH SCHOOL STUDENTS**

**WINNERS OF SIEMENS COMPETITION IN MATH, SCIENCE & TECHNOLOGY  
REGIONAL FINALS AT MASSACHUSETTS INSTITUTE OF TECHNOLOGY REVEALED**

**John Solder of Westport, Connecticut, Wins Top Individual Prize;  
Julia Crowley-Farenga and Patrick Loftus of Evanston, Illinois, Win Top Team Prize**

CAMBRIDGE, MASSACHUSETTS, November 12, 2011 — The shortlist of contenders for the highest science honor awarded to American high school students narrowed tonight as the winners of the Siemens Competition in Math, Science & Technology Region Five Finals were announced. Research with the potential to provide new ways to treat brain disorders earned top honors and the \$3,000 Individual scholarship for John Solder of Westport, Connecticut. Research that helps explain the evolution of galaxies won the \$6,000 Team scholarship for Julia Crowley-Farenga and Patrick Loftus of Evanston, Illinois.

The students presented their research this weekend to a panel of judges from Massachusetts Institute of Technology (MIT), host of the Region Five Finals. They are now invited to advance to the National Finals in Washington, DC, December 2-5, 2011, where \$500,000 in scholarships will be awarded, including two top prizes of \$100,000. The Siemens Competition, a signature program of the Siemens Foundation, is administered by the College Board.

“The Siemens Competition has a proud history of attracting awe-inspiring research projects from America’s best and brightest and we are pleased to see that this year is no exception,” said Jeniffer Harper-Taylor, president of the Siemens Foundation. “We can all take heart in the remarkable work being done by this next generation of young innovators as exemplified by Mr. Solder, Ms. Crowley-Farenga and Mr. Loftus.”

**The Winning Individual**

John Solder, a senior at Staples High School in Westport, Connecticut, won the individual category and a \$3,000 college scholarship for research he hopes will help the millions who suffer from injuries or disorders of the prefrontal regions of the brain, which include Parkinson’s and Alzheimer’s diseases.

His project, entitled *Optogenetic Interrogation of Prefrontal Cortex Dopamine D1 Receptor-Containing Neurons as a Technique to Restore Timing: A Novel Approach to Treat Prefrontal*

*Disorders*, used a new technology called optogenetics, in which light of specific wavelengths is administered to a specific part of the brain to turn on or off genetically-modified cells.

“Mr. Solder has shown great scientific maturity and daring in probing the functioning of the prefrontal cortex – a key part of the brain,” said competition judge Dr. Mary-Lou Pardue, Boris Magasanik Professor of Biology at MIT. “Using cutting-edge tools, he has shown the contribution of dopamine-related neurons in controlling the brain’s ability to estimate time, which many aspects of human behavior rely on. His experiments were elegantly designed and well controlled. The implications of his work are broad and relate to the many neurological conditions that arise from disorders of the prefrontal cortex.”

John Solder was a first place team winner at the FIRST Robotics Tech Challenge World Championship. A classical and jazz bassist, he has performed at Carnegie Hall and Tanglewood. He helped develop easy-to-use educational software for children as part of the One Laptop Per Child program and hopes to dedicate his career to researching innovative solutions for global challenges such as disease, pollution and hunger. His mentors on the project were Dr. Benjamin Land and Dr. Ralph DiLeone, Yale University.

### **The Winning Team**

Julia Crowley-Farenga and Patrick Loftus, seniors at Evanston Township High School in Evanston, Illinois, won the team category and will share a \$6,000 scholarship for their astronomy project entitled, *Morphological Classification of Post-Starburst Galaxies*, in which the team examined and classified 2,811 galaxies.

“Ms. Crowley-Farenga and Mr. Loftus have conducted a comprehensive visual classification of ‘post-starburst’ galaxies in order to explain how galaxies progress from star-forming to non-star-forming states,” said competition judge Dr. Leigh Royden, chair of the Program in Geology and Geochemistry at MIT. “Their results indicate that large-mass and small-mass galaxies undergo this transition in different ways. Small-mass galaxies expel matter by supernova activity, while large-mass galaxies undergo mergers that disrupt the distribution of matter within the galaxies. These students have made a fundamental contribution to understanding the evolution of galaxies. Their results suggest a link between the end of star formation in large galaxies and the growth of black holes at the center of these galaxies.”

From a young age, Julia Crowley-Farenga would search for shooting stars and dreamed of becoming an astronaut traveling across the universe. She still hopes to be an astronaut or work for NASA. She plans to major in engineering, materials science or nanotechnology. A member of the varsity track and field team, she enjoys gardening and is an enthusiastic Chicago sports fan.

Patrick Loftus is a member of the Midwest Young Artists Symphony Orchestra and percussion ensemble, as well as a member of his school’s gymnastics team. He plans to major in computer science, mathematics or physics and hopes to become a professor “with room for travel and research.” The team’s mentor on the project was Dr. Laura Trouille, Northwestern University.

### **Regional Finalists**

The remaining regional finalists each received a \$1,000 scholarship. Regional Finalists in the individual category were:

- Daniel Ling, East Greenwich High School, East Greenwich, Rhode Island
- Kingston Pung, Hopkins School, New Haven, Connecticut

- Zachary Schiffer, State College Area High School, State College, Pennsylvania
- Vijay Viswanathan, Upper St. Clair High School, Upper St. Clair, Pennsylvania

Team Regional Finalists were:

- Michael Chen, Central Bucks High School West, Doylestown, Pennsylvania, and Kevin Chen, Methacton High School, Eagleville, Pennsylvania
- Laura Gunderson and Jacalyn Sickels, Middlesex County Academy for Science, Mathematics and Engineering Technologies, Edison, New Jersey
- Ilana Teicher, Ma'ayanot Yeshiva High School for Girls, Teaneck, New Jersey, and Victoria Petrova, South High School, Torrance, California

### **The Siemens Competition**

Launched in 1998, the Siemens Competition is the nation's premier science research competition for high school students. An all-time record of 2,436 students registered to enter the Siemens Competition this year for an unprecedented 1,541 projects submitted. 317 students were named semifinalists and 96 were named regional finalists, representing 45 states. Entries are judged at the regional level by esteemed scientists at six leading research universities which host the regional competitions: California Institute of Technology, Carnegie Mellon University, Georgia Institute of Technology, Massachusetts Institute of Technology, University of Notre Dame and The University of Texas at Austin. Follow the Siemens Foundation on Twitter ([www.twitter.com/sfoundation](http://www.twitter.com/sfoundation)) and Facebook ([www.facebook.com/SiemensFoundation](http://www.facebook.com/SiemensFoundation)) to learn about the remarkable research being done by this year's brilliant Siemens Scholars. Then visit [www.siemens-foundation.org](http://www.siemens-foundation.org) at 9:30am EST on December 5 for a live webcast of the National Finalist Awards Presentation.

### **The Siemens Foundation**

The Siemens Foundation provides more than \$7 million annually in support of educational initiatives in the areas of science, technology, engineering and mathematics (STEM) in the United States. Its signature programs include the Siemens Competition in Math, Science & Technology, Siemens Awards for Advanced Placement, and The Siemens We Can Change the World Challenge, which encourages K-12 students to develop innovative green solutions for environmental issues. By supporting outstanding students today, and recognizing the teachers and schools that inspire their excellence, the Foundation helps nurture tomorrow's scientists and engineers. The Foundation's mission is based on the culture of innovation, research and educational support that is the hallmark of Siemens' U.S. companies and its parent company, Siemens AG. For more information, visit [www.siemens-foundation.org](http://www.siemens-foundation.org).

### **The College Board**

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of more than 5,900 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success — including the SAT<sup>®</sup> and the Advanced Placement Program<sup>®</sup>. The organization also serves the education community through research and advocacy on behalf of students, educators and schools. For further information, visit [www.collegeboard.org](http://www.collegeboard.org).

***Video and photos of winners available on request.***

# # #