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**TEEN MATH SENSATIONS FROM MICHIGAN AND INDIANA TAKE REGIONAL TITLE
IN PRESTIGIOUS SIEMENS COMPETITION IN MATH, SCIENCE & TECHNOLOGY**

**Mathematics Research Honored in Nation's Premier Science Research
Competition for High School Students at University of Notre Dame**

**Allen Yuan of Farmington Hills, Michigan, Wins Top Individual Prize;
Jeffrey Shen, Youkow Homma and Lyndon Ji of Carmel, Indiana, Win Top Team Prize**

SOUTH BEND, INDIANA, November 20, 2010 —Cutting edge mathematics research earned top honors tonight for Allen Yuan and the team of Jeffrey Shen, Youkow Homma and Lyndon Ji in the Region Three Finals of the 2010-11 Siemens Competition in Math, Science & Technology, the nation's premier science research competition for high school students.

The Siemens Competition, a signature program of the Siemens Foundation, is administered by the College Board. Tonight's winners will receive thousands of dollars in scholarships and be invited to compete at the National Finals in Washington, DC, December 3–6, 2010, where the winners of six regional competitions will vie for the \$100,000 Grand Prize and national acclaim for extraordinary scientific achievement at the high school level.

"Each year, the Siemens Foundation invites America's high school students to make their mark in the world of science," said Jeniffer Harper-Taylor, President of the Siemens Foundation. "We commend these students on rising to the challenge and pushing the envelope of scientific thought."

The students presented their research this weekend to a panel of judges from the University of Notre Dame, host of the Region Three Finals.

The Winning Individual

Allen Yuan, a senior at Detroit Country Day School in Beverly Hills, Michigan, won the individual category and a \$3,000 college scholarship for his project, *Linearly Many Faults in (n,k) -star Graphs*. Mr. Yuan's project falls into the area of Graph Theory, which is useful in the design of

computer networks. Addressing the issue of keeping a network robust, he proved that a network of a well known design had the property that if a few sites are knocked out, the network is only minimally impaired.

“With care and skill, Mr. Yuan showed that a set of graphs which have received some attention lately – the so-called (n,k) star graphs – will be minimally impaired even if a rather large number of sites is removed,” said competition judge Dr. Francis X. Connolly, Professor, Department of Mathematics, University of Notre Dame. “He used difficult induction techniques and a striking recursive property which the (n,k) star graph enjoys. Mr. Yuan’s work was marked by a spirit of carefulness and exhibited a sharp, deep understanding of the material.”

Allen Yuan has been interested in mathematics for as long as he can remember. In addition to being a skilled mathematician, he is a talented pianist and won first prize in the Eastman International Piano Competition. In his free time, he plays recitals at local senior centers. Mr. Yuan plans to study mathematics and piano performance in college. He was mentored by Dr. Eddie Cheng of Oakland University, who had done earlier work on (n,k) star graphs.

The Winning Team

Jeffrey Shen, a senior at Park Tudor School in Indianapolis, Indiana, and Youkow Homma and Lyndon Ji, both juniors at Carmel High School in Carmel, Indiana, won the team category and will share a \$6,000 scholarship for a mathematical physics project that provides deeper insight into the fundamental nature of molecular behavior.

In their project, *A Study of Nearest Neighbor Distances on a Circle: Multidimensional Case*, the team looked at the quantum harmonic oscillator, one of the most fundamental models in quantum mechanics, to see if there is any pattern in how solutions of the model behave. They used sophisticated techniques of higher mathematics to rephrase a question in terms of number theory and were able to extend some classical results, including a theorem originally proved by noted mathematical physicist Freeman Dyson, to make them more precise. The students were also able to formulate an important conjecture regarding behavior of the system and collected some convincing evidence to support this conjecture.

“We were impressed by the ease with which these young students were able to operate with difficult mathematical concepts,” said judge Dr. Michael Gekhtman, Professor, Department of Mathematics, University of Notre Dame. “They also demonstrated great depth of understanding and strong teamwork.”

Jeffrey Shen, a National AP Scholar and Cum Laude Commendee, is a veteran of many math and science competitions. He is also an accomplished pianist and two-time gold medalist in the Indiana State Piano Competition. After studying mathematics and computer science, Mr. Shen hopes to become a professor and research scientist.

Youkow Homma is an AP Scholar and member of student government. Fluent in Japanese, he plays the flute in his school wind ensemble. Mr. Homma has participated in MathCounts and USA Mathematics Olympiad. He plans to study mathematics and physics in college.

Lyndon Ji's favorite subjects are economics and physics. He has participated in MathCounts and USA Mathematics Olympiad and enjoys ping-pong. Mr. Ji plays the piano and violin and is a member of his school orchestra. He is still considering his college and career options.

Dr. Pavel Bleher, Professor, Indiana University-Purdue University Indianapolis, mentored the team on their project.

Regional Finalists

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

- **Emily Chen**, Brownell-Talbot High School, Omaha, Nebraska
- **Prarthana Dalal**, Shawnee Mission East High School, Prairie Village, Kansas
- **Prem Thottumkara**, Macomb High School, Macomb, Illinois
- **Gechen Zhang**, Rockwood Summit High School, Fenton, Missouri

Team Regional Finalists were:

- **Randy Jia** and **David Lu**, Detroit Country Day School, Beverly Hills, Michigan
- **Sresht Rengesh**, Avondale Senior High School, Auburn Hills, Michigan, and **Ananya Mukundan**, International Academy East, Troy, Michigan
- **Sai Vangala**, Brookfield Central High School, Brookfield, Wisconsin, and **Katelyn Smith**, Country Day School of the Sacred Heart, Bryn Mawr, Pennsylvania
- **(Frank) Xiao Zhu** and **Lawrence Kim**, Troy High School, Troy, Michigan

The Siemens Competition

The Siemens Competition was launched in 1998 to recognize America's best and brightest math and science students. Every fall, America turns its eye to the brilliant young scientists competing in the Siemens Competition. 2,033 students registered to enter the Competition this year for a record number of 1,372 projects submitted. 312 students were named semifinalists and 94 were named regional finalists, representing 36 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) and Facebook (www.facebook.com/SiemensFoundation) for updates throughout the 2010-11 Siemens Competition. Then visit www.siemens-foundation.org at 9:30am EST on December 6 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.

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 5,700 of the nation'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® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools.

B-roll and photos of winners available on request.

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