

SUMMER 2013

MAUREEN PALMER, Editor/Public Affairs Manager

Dr. Terence Tao, Inaugural Recipient of the Joseph I. Lieberman Award

The Joseph I. Lieberman Award for Outstanding Achievement in Science, Technology, Engineering, and Mathematics was presented to Dr. Terence Tao, alumnus of the Research Science Institute (RSI) and Chair of the Math Department at the University of California, Los Angeles (UCLA), at the CEE Congressional Luncheon on April 24, 2013. Mr. Gregory Gunn, Entrepreneur in Residence, City Light Capital and CEE Board of Trustees Member, Mr. Mel Chaskin, CEE Board Chairman, and Joann DiGennaro, CEE President, presented the award.

The award, along with a \$10,000 prize, recognizes Senator Lieberman's 18 years of support for the Center's mission. CEE will grant this award every 2-3 years in honor of the Senator.

Over 60 nominations, for the award were considered by a distinguished panel of RSI alumni headed by Gregory Gunn, RSI '86 and Marc Horowitz, RSI '86. The committee of alumni narrowed the field to six finalists who were forwarded to the CEE Board of Directors for consideration. The CEE Board voted unanimously to award the honor to Dr. Terence Tao.



Dr. Terence Tao, RSI'89, Inaugural Awardee of the Joseph I. Lieberman Award for Outstanding Achievement in Science, Technology, Engineering, and Mathematics.

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RSI Alumnus Receives Intel Foundation Young Scientist Award

Henry Lin, RSI'12 of Shreveport, LA received the Intel Foundation Young Scientist Award of \$50,000 at the Intel International Science and Engineering Fair (ISEF) for modeling the behavior of distant galaxies.

Henry established that scientists are more likely to find a particular type of cluster with galaxies that have cooler than usual temperature at their core. He has provided scientists with valuable new data which allows them to have a better understanding of the mysteries of astrophysics to include dark energy, dark matter, and the balance of heating and cooling in the Universe's most massive objects.

Since 1950, Society for Science & the Public has been dedicated to public engagement in scientific research and education and has administered the International Science and Engineering Fair. ♦



Henry Lin, RSI'12, receives the \$50,000 Intel Foundation Young Scientist Award. (Photo Credit: Intel/Chris Ayers)



RSI'12 Alumni Sara Volz, First Place Awardee, shares the spotlight with Jonah Kallenbach, Second Place Scholarship Winner, at the Intel Science Talent Search Awards Dinner. (Photo Credit: CEE/Maite Ballesteros)

RSI Alumni Take First and Second Awards at the Intel Science Talent Search Competition

CEE's Research Science Institute (RSI) alumni claimed top honors at the U.S. premiere Intel competition. RSI 2012 Alumna, Sara Volz of Colorado Springs, CO, received the \$100,000 First Place scholarship at the prestigious Intel Science Talent Search. Sara was selected for her research on algae biofuels and the investigation to increase the oil content of algae to create an economically viable source of biofuel. Sara was a Department of Defense (DOD) sponsored scholar at RSI.

Jonah Kallenbach, of Ambler, PA, took Second Place honors and the \$75,000 scholarship at the Intel Science Talent Search. His bioinformatics study breaks new ground in predicting protein binding for drug therapy.

Ms. Volz and Mr. Kallenbach participated in the Center's 2012 Research Science Institute (RSI), a six-week summer enrichment program jointly sponsored by CEE and the Massachusetts Institute of Technology (MIT). To date, RSI alumni have included 488 Intel Science Talent Search semifinalists, 138 finalists, and 9 first-place winners.

CEE extends sincere congratulations to Sara and Jonah! ♦



CEE is a recipient of the prestigious Charity Navigator "Four Star" rating signifying that it exceeds industry standards in financial health, accountability, and transparency.



Admiral H.G. Rickover and Joann DiGennaro, CEE's President (center) with students from the Inaugural 1984 Research Science Institute.

CEE Celebrates 30 Years of Excellence in Education

The Center for Excellence in Education (CEE) celebrates its 30th Anniversary of contributing to the scientific leadership of this country and encouraging international collaboration in science, technology, engineering and mathematics (STEM).

CEE will commemorate the "30th Milestone" with a celebration in Cambridge, MA at the Marriott Hotel from October 25-27, 2013. The weekend will include enlightening panel discussions that will feature Nobel Laureates and distinguished STEM professionals. The Center's remarkable program alumni will head up presentations comparable to TED talks that will be riveting and inspiring.

The late Admiral H.G. Rickover, the father of the nuclear navy and civilian uses of nuclear power, and Joann DiGennaro, CEE's President, founded CEE in 1983. They recognized that nurturing young scholars to careers of excellence and leadership in STEM was an essential investment in our national and global future.

Since its founding, CEE has developed the Research Science Institute (RSI), the USA Biology Olympiad (USABO), and the Teacher Enrichment Program (TEP). All of CEE's programs are unique and offered cost-free to students and teachers selected to participate. To date, thousands of young scholars from all states and from 53 nations have participated in CEE's programs. ♦

Seven RSI Alumni Named U.S. Presidential Scholars

CEE proudly announces that seven RSI alumni were named U.S. Presidential Scholars for 2013. Each year, up to 141 students receive the prestigious award, one of the Nation's highest honors for high school students.

The 49th class of U.S. Presidential Scholars is comprised of one young woman and one young man from each state, the District of Columbia and Puerto Rico, and from U.S. families living abroad, as well as 15 chosen at-large and 20 U.S. Presidential Scholars in the Arts.

More than 3,300 candidates qualified for the 2013 awards determined by outstanding performance on the College Board SAT and ACT exams, and through nominations made by Chief State School Officers or the National YoungArts Foundation's nationwide YoungArts™ competition out of the three million high

school students expected to graduate this year. Application is by invitation only.

On June 16th, the 2013 ceremony was held at the White House and each honoree received a Presidential Scholar Medallion. The Center extends congratulations to the following RSI' 12 alumni named as U.S. Presidential Scholars:

- o Bryce C. Kaw-uh, Incirlik High School, American Abroad
- o Alex Y. Huang, Ames High School, Ames, IA
- o Albert Chu, Phillips Exeter Academy, Exeter, NH
- o Catherine Wong, Morristown High School, Morristown, NJ *
- o Courtney S. Noh, Spring Valley High School, Columbia, SC
- o Daniel T. Zuo, White Station High School, Memphis, TN

- o Kimberley Yu, Plano West Senior High School, Plano, TX

**Indicates Presidential Scholar in the Arts.*

The U.S. Presidential Scholars Program, a unique federal program, has honored over 6,000 of the nation's top-performing students who have demonstrated leadership, scholarship, and contribution to school and community. The Commission on Presidential Scholars reaffirms, on behalf of the President of the United States, the Nation's commitment to education.

The Program was established in 1964 by the Executive Order of the President to recognize and honor some of our Nation's most distinguished graduating high school seniors. It was extended in 1979 to recognize students who demonstrate exceptional talent in the visual, creative and performing arts. ♦

RSI Alumni in Chicago, Illinois

An enthusiastic group of RSI alumni gathered in Chicago, Illinois this past March for an evening of camaraderie and networking. The occasion was graciously hosted by Mr. Nicholas Gouletas, Chairman of the Board, American INVSCO, and a member of CEE's Board of Trustees. Joann DiGennaro, CEE's President enjoyed the alumni discussion about the delicious Greek food, the RSI Family, and the upcoming CEE 30th Birthday Celebration in Cambridge, MA October 25-27, 2013.

Mr. Gouletas summed up the evening by stating, "The RSI Alumni are just amazing!" ♦



CEE Alumni with old and new Rickoid Friends.

Spotlight on CEE Board of Trustees



Senator Bill Nelson, Honorary Member of the CEE Board of Trustees

Senator Bill Nelson of Florida is the Center for Excellence in

Education's newest Honorary member of its Board of Trustees. He has represented Florida in the U.S. Senate since 2001.

"I look forward to working with the Center to ensure U.S. students remain competitive with the rest of the world in science, math and engineering," said Nelson.

Senator Nelson serves on the Senate Commerce, Armed Services, Budget, and Finance committees. He is the Chairman of the Aging Committee and is recognized as a leading congressional expert on the National Aeronautics and Space Administration (NASA). A former NASA Astronaut, Nelson spent six days orbiting the Earth aboard the Space Shuttle Columbia in 1986.

Senator Nelson replaces retiring U.S. Senator Joseph Lieberman on the CEE Board of Trustees.

CEE is honored that Senator Nelson will lend his expertise and is grateful for his commitment to excellence in education.



Susan Lavrakas, Director, Workforce at Aerospace Industries Association

Susan Lavrakas is the Director, Workforce, at the Aerospace Industries Association (AIA). She heads the association's division on science, technology, engineering, and mathematics (STEM) education and workforce issues.

Susan received her B.A. from Hamline University and did graduate studies at the University of Southern California. She began her career at the Central Intelligence Agency (CIA), conducted research at the RAND Corporation, and then was recruited into the defense industry by Northrop Grumman Corporation, where she was employed for nearly two decades. From 2003 through 2011,

Susan worked in Government Relations at BAE Systems.

Susan chaired the AIA Industrial Base and Workforce Committee from 2007, and was also a member of the AIA Workforce Steering Committee from its founding in 2009, until she joined the AIA staff. She also served as Vice President for Legislative Liaison of the STEM Workforce Division of the National Defense Industrial Association.

Susan is a member of the Champions Board of the National Girls Collaborative Project, the STEM Equity Pipeline National Advisory Board of the National Alliance for Partnerships in Equity, the Board of Directors of the Arts Council of Fairfax County (Virginia), and the Education Committee of the Wolf Trap Foundation's Board of Directors.



Roger Pellegrini, Managing Director, Securitization Finance, RBC Capital Markets

Roger Pellegrini is Managing Director, Securitization Finance at RBC Capital Markets. He is primarily responsible for the quantitative risk analysis and management of securitization activities, as well as contributing to the dialogue with regulators and lawmakers on the topic of financial regulation.

Prior to RBC Capital Markets, Roger was Vice President, Credit Portfolio, Structured Products at J.P. Morgan and an Associate, Public Finance Department, at Shearson Lehman Brothers.

Mr. Pellegrini earned a Bachelor of Science in Aeronautical and Astronautical Engineering from the Massachusetts Institute of Technology (MIT). Roger received an MBA with a concentration in Finance from Yale University School of Management. He has contributed to patents and authored publications.

Mr. Pellegrini's son, Roger Pellegrini, attended the 2011 Research Science Institute. ♦



Senator Joseph Lieberman, Member of Congress, shares memories with Research Science Institute and USA Biology Olympiad Alumni.

CEE Thanks Senator Joseph Lieberman

RSI and USABO alumni, along with the Center's staff, gathered at the Hart Senate Office Building to bid farewell to retiring Senator Joseph Lieberman (CT). Heartfelt gratitude was extended by all to Senator Lieberman for his eighteen years of service as a CEE Honorary Board Member.

At the event, Senator Lieberman shared some of his fondest memories and success stories from his many years of service in the U.S. Congress. He emphasized the importance of science, technology, engineering, and mathematics (STEM) education. Senator Lieberman stated, "I am honored to have been involved with CEE and its programs, especially the Research Science Institute (RSI). It is amazing to see how well the alumni of the Center's programs are doing and how they are making a difference in this country."

Senator Lieberman reflected on Admiral Rickover and his legacy and called him an "iconic figure" that is an integral figure in U.S. history. It was Senator Sam Nunn, then an Honorable CEE Trustee, who engaged Senator Lieberman with CEE. Following this example, Senator Lieberman reached out to Senator Nelson and recruited him to serve on the CEE Board.

CEE will fondly remember Senator Lieberman as a "Champion for the Center," and for his support of the Research Science Institute (RSI), the USA Biology Olympiad (USABO), and the Teacher Enrichment Program (TEP). ♦

Grades A and B are sometimes given too readily – Grade A for work of no very high merit, and Grade B for work not far above mediocrity.

(Source: Excellence Without a Soul - Harvard Faculty Report of 1894, Page 107)

USA Biology Olympiad 2013

Twenty Finalists were selected to attend the 11th Annual USA Biology Olympiad (USABO) National Finals June 2-14 at Purdue University. Ms. Kathy Frame, Director USABO/Special Projects, Center for Excellence in Education, and Dr. Clark Gedney, Director, Bio Media Center for Instructional Computing, Purdue University, are heading the administration of the program.

The USABO is an academic competition that begins with an Open Exam that is administered nationwide to high school students. Nearly 10,500 students registered nationally for the Open Exam representing 37 states and one International School. The Open Exam is a 50 minute/50 multiple choice question exam designed to identify the top 10% of biology students in the United States.

The next round, the Semifinal Exam, is a two-hour multiple choice and short answer exam that focuses on application-based

inquiry. From the Semifinal Exam, the top scoring 20 students in the nation are invited to attend the USABO National Finals training session at Purdue where they compete for medals.

Four scholars from the USABO comprise "Team USA" and will compete on behalf of the United States at the International Biology Olympiad in Bern Switzerland, July 14 - 21.

Ms. Frame, CEE's USABO Director, was elected to the Subgroup of Switzerland's Host Committee for the 2013 IBO and will depart for Switzerland a week prior to the opening of the IBO. As an integral member of the Subgroup, she will review the practical and the theoretical examinations that have been developed and focus on the quality of the questions for scientific correctness and conceptual formulation. The Committee will check the marking allocation plus the balance

of topics of the theoretical examination according to the IBO Guide.

CEE is proud that every U.S. team member has victoriously medaled in the International Biology Competition since 2003, bringing home thirty-one gold, seven silver, and two bronze medals. If past successes hold true, the future looks very bright for Team USA 2013.

CEE has developed the Teacher Resource Center (TRC), an immensely useful tool for both students and teachers of biology as a supplement to the USABO. The TRC encourages excellence in biology education throughout the United States, and is particularly important in areas with schools which may not have access to the most up-to-date science resources for teachers. It provides teachers with detailed study guides, previous USABO exams, and links to other helpful biology Web sites. The TRC helps all teachers raise the bar of excellence in Biology. ♦

Research Science Institute 2013

In its 30th year, the Research Science Institute (RSI) is offered in partnership with the Massachusetts Institute of Technology (MIT) for 6 weeks each summer. RSI is a U.S. program offered cost-free to high-achieving STEM students competitively selected to attend.

The RSI Selection Committee, comprised of professional educators and RSI alumni, convened in February at CEE's McLean, Virginia office to select fifty-one of this nation's top achieving high school students to attend the nationally recognized program.

Students selected for RSI are exemplary as based on the following criteria: high school records, personal essays, standardized test scores, teacher recommendations, research experience, potential for leadership, and honors and awards in math and science.

Thirty international students will join the U.S. students from Australia, Bulgaria, Canada, China, Israel, Lebanon, Poland, Saudi Arabia, Singapore, South Korea, Spain, Sweden Switzerland, Turkey, and the United Kingdom. To date, RSI has had international students from over 53 nations represented at the Institute.

RSI scholars participate in a week of intensive science, technology, engineering and mathematics (STEM) classes with accomplished professors. They are faculty members of leading universities such as Harvard University, Massachusetts Institute of Technology, University of Washington, Princeton University, and Columbia University.

The core of RSI is the four-and-a-half week STEM research internship where students conduct individual projects under the tutelage of mentors who are scientists, engineers, and researchers. The internships help the students learn the disciplined practice of scientific research and the joy of scientific discovery. Each student is paired with a mentor at a leading university, hospital, or corporation. The students complete their research in written scientific format and present it at a plenary session during the last two days of the Institute before a panel of eminent scientists, guests, and RSI faculty.

At the completion of RSI, five distinguished writing awards are named by a panel of RSI alumni and faculty. Judging is based on the depth, rigor, and significance in the field of study, and how well the students communicate original work in their papers. An independent panel of

Ralph Waldo Emerson, remarked, "A foolish consistency is the hobgoblin of little minds."

(Source: An American Hero, page 24)

academic and corporate leaders selects five presentations for Distinguished Oral Presentation. "Rickoid of the Year" is also awarded and is designated by fellow classmates for achievement on individual scholarship and participation in the RSI community.

Dr. Andrew Charman, RSI'86 alumnus and lecturer of physics at University of California Berkeley, will again lead RSI 2013. The RSI Academic Professors include:

- Dr. Steven Byrnes, RSI'02, Harvard University - Physics
- Dr. Steven Leeb, Massachusetts Institute of Technology - Engineering
- Dr. Forrest Michael, RSI'90, University of Washington - Chemistry
- Dr. Sean Mulholland, Economics, Stonehill College
- Dr. Yi-Ching Ong, RSI'98, Columbia University - Biology
- Mr. Lance Rhoades, University of Washington - Humanities
- Dr. Christopher Skinner, RSI'88, Princeton University - Math

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Teacher Enrichment Program

The Teacher Enrichment Program helps to assure a future talented and diverse U.S. workforce in science, technology, engineering and mathematics (STEM). TEP consists of the Clearinghouse, Bite of Science, the Lab Bench, Teacher Roundtables, Public/Private Partnerships, and the CEE Blog. This six-component professional development program is available cost-free to urban and rural high school science teachers to strengthen their professional development of science in the classroom.

The *Clearinghouse* is an online compendium of science resources within targeted states. Teachers can access more than 1,300 content-rich STEM sites gathered for Biology, Chemistry, Physics, and Engineering classes at the secondary school level. The Clearinghouse is available cost-free to any teacher, and all content listed is free to access for use in the classroom.

Bite of Science brings together 25 teachers at each of several sites in respective states to learn from scientists and/or engineers over an informal dinner. Teachers have the opportunity to hear about a cutting-edge research area and learn how to connect the research to the high school classroom and laboratory.

CEE is proud to announce that two Bite of Science sessions featured Research Science Institute (RSI) alumni. Dr. William Yang, RSI '85, spoke in Los Angeles, California, to a standing room only crowd about his exciting research on Huntington's disease. Dr. Soham Roy, RSI '86, spoke in Houston, Texas. He excited the teachers with his reflections on RSI, his medical practice, and his research effort to reduce operating room fires.

Thirteen Bite of Science sessions (highlighted below) were held during the 2012-2013 school year in Virginia, Indiana, Illinois, California, and Texas:

- **Manassas, Virginia** featured Michael Frachel, Senior Engineer at Micron Technology, Inc. and Alessandra Luchini, Ph.D., Research Assistant Professor in the Center for Applied Proteomics and Molecular Medicine at George Mason University.
- **Logansport, Indiana** featured Casey N. McMurtrie, Quality Assurance and Laboratory Manager at The Andersons Clymers Ethanol, LLC, Heather Nacke, Industrial Engineering Manager at Chrysler's Kokomo Transmission Plant, and Jerry Sweeten, Ph.D., Associate Professor in Biology at Manchester University.

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**Success is never final.
- Winston Churchill**

(Source: *The Very First Light*, page 246)



Soham Roy, MD, FACS, FAAP, Associate Professor, Pediatric Otolaryngology - Head and Neck Surgery University of Texas Medical School at Houston, Director of Pediatric Otolaryngology, Children's Memorial Hermann Hospital Memorial Hermann-Texas, Medical Center Director of Undergraduate Medical Education, UTH-ORL In Affiliation with Children's ENT of Houston, RSI'86 Alumnus, speaks at the Houston Bite of Science.



X. William Yang, M.D., Ph.D., Professor, Center for Neurobehavioral Genetics, Department of Psychiatry & Biobehavioral Sciences, David Geffen School of Medicine, University of California, Los Angeles (UCLA), RSI'85 Alumnus, speaks at the Bite of Science in Los Angeles.

Teacher Enrichment Program Roundtable

CEE inaugurated the Teacher Enrichment Program Roundtable in winter 2013, in McLean, Virginia. This novel event, entitled "Innovate and Inspire: Professional Development with Einstein Fellows," showcased four teachers who currently serve as Albert Einstein Distinguished Educator Fellows at the *National Science Foundation (NSF)* and *National Oceanic and Atmospheric Administration (NOAA)*.

The Teacher Roundtable provided a one-of-a-kind opportunity for Virginia high school science teachers to interact

with nationally recognized, award-winning teachers in science, technology, engineering, and mathematics (STEM). Einstein Fellows shared STEM teaching strategies, as well as provided attendees with a variety of professional development resources available at national and international levels.

The TEP Roundtable Presenters included: **Cindy Hasselbring**, High School Mathematics Teacher, Milan High School in Milan, MI *Presidential Award for Excellence in Mathematics and Science Teaching Awardee*, *National*

Board Certified Teacher, *Einstein Fellow*, Education & Human Resources Directorate, Office of the Assistant Director, National Science Foundation; **Remy Dou**, K-12 Science Dept. Chair & HS Science Teacher, Miami Christian School in Miami, FL *Toyota Tapestry Awardee*, *ING Unsung Heroes Awardee*, *Einstein Fellow* at Education and Human Resources Directorate at the National Science Foundation in the Advancing Informal STEM Learning program; **Stephen Bartlett**, High School Physics Teacher, Robinson Secondary

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CEE's Congressional Luncheon - - Resounding Success

The Caucus Room in the Russell Senate Office Building, the oldest of the Senate office buildings, was the historical setting for the CEE Annual Congressional Luncheon on April 24, 2013, sponsored by Capital One Bank. The room was filled to capacity with CEE special guests including Research Science Institute (RSI) and USA Biology Olympiad (USABO) alumni and Congressional Speakers.

Soham Roy, MD, FACS, FAAP, RSI '86, Associate Professor, Director of Pediatric Otolaryngology - Head and Neck Surgery, University of Texas Medical School at Houston, welcomed the attendees and provided a passionate overview of what RSI meant to him, and how it profoundly impacted his career.

CEE also featured speakers: RSI 2012 Alumna and Department of Defense Scholar, Sara Volz, who was named

the \$100,000 First Place Award at the Intel Science Talent Search, and Jonah Kallenbach, RSI 2012 Alumnus, who was the \$75,000 Second Place Awardee. They shared fond and personal stories of their recent RSI experience and highlighted the research they conducted at RSI.

Senators Bill Nelson (FL) and Thad Cochran (MS), with Congressmen Gene Green (TX), Mike Honda (CA), Randy Hultgren (IL), Todd Rokita (IN), and Chris Van Hollen (MD) provided remarks about their involvement with STEM related issues. Each noted the importance of U.S. global competitiveness, support for STEM educational initiatives, and continued support for this nation's brilliant young minds.

Senator Joseph Lieberman was fondly remembered by CEE with the presentation of the *Joseph I. Lieberman*

Award for Outstanding Achievement in Science, Technology, Engineering and Mathematics. The award was presented to Dr. Terence Tao, RSI'89 Alumnus, for his outstanding contribution to mathematics. The award, along with a \$10,000 prize, recognizes Senator Lieberman's 18 years of support of the Center and his service as an Honorary CEE Trustee.

The luncheon celebrated the success of RSI, offered in partnership with the Massachusetts Institute of Technology (MIT), the USA Biology Olympiad (USABO), collaboratively sponsored with Purdue University, and the Teacher Enrichment Program (TEP).

CEE concluded the event by raffling gift certificates donated by Clyde's, Brix American, and Marco Polo restaurants, along with a XBOX 360 generously provided by Microsoft Corporation. ♦

Members of Congress make remarks at CEE's Congressional Luncheon.



Charlie Pasternak, RSI'12 and Congressman Chris Van Hollen (MD - 8th District)



Dr. Soham Roy, RSI '86 with Congressman Gene Green (TX - 29th District)



Dr. Terence Tao, RSI'89 speaking with Congressman Mike Honda (CA - 17th District)



Senator Bill Nelson (FL), CEE Honorary Trustee



Congressman Todd Rokita (IN - 4th District)



Senator Thad Cochran (MS)



Congressman Randy Hultgren (IL - 14th District)

Dr. Terence Tao, Inaugural Recipient of the Joseph I. Lieberman Award (from page 1)

Dr. Tao is a renowned mathematician. His primary focuses are in harmonic analysis, PDE, geometric combinatorics, arithmetic combinatorics, analytic number theory, compressed sensing, and algebraic combinatorics. He is part of the Analytical Group at UCLA and is the editor/associate editor at several mathematical journals. Dr. Tao holds dual U.S. and Australian citizenship.

Dr. Tao excelled not only at RSI, but also at the *International Math Olympiad* garnering a bronze medal in 1986, a silver medal in 1987, and a gold medal when he had just turned thirteen in 1988. His father reflected at the age of two, Tao attempted to teach a 5-year-old child arithmetic and English.

CEE's President Joann DiGennaro stated, "Terry is an example of the caliber of students supported by the Center's Research Science Institute."

I have little patience with scientists who take a board of wood, look for its thinnest part, and drill a great number of holes where drilling is easy.

- Albert Einstein

(Source: *The Very First Light*, page 88)

At the age of twenty, Terence completed his Ph.D. in 1996 at Princeton University. He received his Bachelor's and Master's degrees from Flinders University.

Dr. Tao was promoted to full professor at UCLA at the age of 24 and remains the youngest person ever appointed to that rank by the institution. In 2006, Dr. Tao was the youngest person ever to be awarded the Fields Medal by the International Congress of Mathematicians. The *Fields Medal*, the International Medal for Outstanding Discoveries in Mathematics, is the mathematical equivalent to the Nobel Prize. It is awarded every 4 years to a select group of mathematicians under the age of 40.

Dr. Tao also received *The MacArthur Award* known as the "Genius Grant" in 2007, a \$500,000 fellowship awarded to talented individuals who have shown extraordinary originality and dedication in their creative pursuits and marked capacity for self-direction. He was awarded the *Alan T. Waterman Award* in 2008 by the National Science Foundation for his original contributions to many fields of mathematics, including number theory, differential equations, algebra, and harmonic analysis.

"CEE reflects on the fond memories of Tao's time at RSI, as the promising young student of 1989, and the world renowned mathematician he became," said Maite Ballesterro, CEE's Vice-President of Programs. ♦

Research Science Institute 2013 (from page 4)

Throughout the program, STEM leaders share knowledge through the *RSI Distinguished Guest Lecture Series*. Three Noble prize winners will address the students this summer to include: Dr. Dudley Herschbach, Harvard Professor Emeritus; Dr. Phillip Sharp, Institute Professor (highest academic rank) at MIT and member of the David H. Koch Institute for Integrative Cancer Research; and Dr. Wolfgang Ketterle, John D. MacArthur Professor of Physics at MIT and Associate Director of the Research Laboratory of Electronics at MIT, Director, MIT-Harvard Center for Ultracold Atoms. The RSI scholars learn about the careers, achievements, and challenges of the STEM environment and also participate in question and answer sessions with all the innovative speakers.

The past 30 years of RSI have been monumental for gathering top young scholars from the United States and around the world. There are over 2,000 RSI alumni that have a track record of success to include:

- 1 Fields Medal Recipient
- 11 Rhodes Scholars
- 15 Marshall Scholars
- 1 McArthur Genius Awardee
- 9 first place winners of the Intel Science Talent Search,
- 2 First Place Winners at the Siemens Competition.

During the summer of 2013, a new group of "Rickoids" will be nurtured to become tomorrow's STEM leaders to meet the challenges of environment, health, energy, agriculture, and national security. ♦

Teacher Enrichment Program Roundtable (from page 5)

School in Fairfax, VA *Engineer & Science Writer, Research Experiences for Teachers Awardee, Einstein Fellow at Directorate for Education and Human Resources, Division on Research and Learning in Formal and Informal Settings, National Science Foundation; Britta Culbertson*, High School Science and Visual Arts Teacher, The Center School in Seattle, WA *Educational consultant for award-winning, educational iPad app called "Powers of Minus Ten", Science, Technology, Engineering, Arts, and Mathematics (STEAM) Proponent, Einstein Fellow at the Office of Education, National Oceanic and Atmospheric Administration.*

CEE will host the second TEP Roundtable in Fall 2013. ♦

When an associate commiserated with Thomas Edison over his having conducted nine thousand unsuccessful experiments in trying to devise a new type of battery, saying, "Isn't it a shame that with the tremendous amount of work you have done you haven't been able to get any results?" Edison, grinning, replied: "Results! Why, man, I have gotten a lot of results! I know several thousand things that won't work?"

(Source: *The Science of Liberty*, page 160)

The Forgotten Gifted Child

By: Joann DiGennaro, President, Center for Excellence in Education

In a competitive global economy, America's future rests on nurturing its most talented, innovative thinkers. Yet on many levels—financially, legislatively, academically and socially—those who are most capable of providing new ideas are being ignored. This is in stark contrast to what many top students experience overseas.



As President of the Center for Excellence in Education (CEE), an organization that I founded with Admiral H.G. Rickover, I have traveled the globe speaking with government officials, educators and some of the world's STEM prodigies. Many international high school scholars have taken part in the Center's Research Science Institute (RSI), a six-week summer enrichment program in science, technology, engineering and math (STEM), sponsored with the Massachusetts Institute of Technology. I have found that the commitment and resources devoted to high-achieving students abroad, even in developing countries, exceeds what is done here.

India, for instance, is focusing on improving education, ramping up its investment to \$44 billion in 2008 from \$11 billion in the late 1980s. India is committed to enrolling 40 million students in college by 2020 and conferring 8 million bachelor's degrees, four times as many as the United States.

While other countries are concentrating on developing their most academically talented, America seems to be turning away from meritocracy. It wasn't this way a generation or two ago. Indeed, the Soviet Union's launch of Sputnik in 1957 stirred U.S. fears of falling behind. A year after the satellite took to the skies, the federal government passed its first large scale initiative in gifted education, the National Defense Education Act. The legislation provided funds to identify and support talented students. Over four years, more than \$1 billion was channeled into 40,000 loans, 40,000 scholarships, and 1,500 graduate fellowships, primarily to achievers in STEM.

Yet the momentum, which helped channel great numbers of Boomers into STEM careers, did not last. The Jacob Javits Gifted and Talented Students Education Act, the only federal program dedicated specifically to gifted and talented students, was passed in 1988. In 2001, the Javits Act was expanded to include competitive grants to school districts and state agencies to enhance gifted programs. While the amount appropriated to fund these initiatives was never impressive, reaching just over \$11 million at its peak, even that modest sum became a target of federal belt-tightening. Funding fell from \$9.6 million in 2006 to \$7.46 million in 2010. Last year, the Javits Act was completely defunded. The Young Scholars Program, funded by the National Science Foundation specifically for academic achievers in K-12 education, was defunded in 1996.

With no federal funding for gifted education, states have had to chart their own paths. According to the Center on Budget and Policy Priorities, 26 states will spend less per student in 2013 than they did in 2012, while 35 are still spending less per pupil than they did before the recession, adjusted for inflation. Just 26 states require gifted programs, and of these, only six provide funding for these programs, according to the National Association for Gifted Children. Another worrisome fact from the report: only six states require all elementary and secondary teachers to have training in gifted education. However, spending only shows part of the picture. Nationwide, the percentage of public high schools that offer Advanced Placement or International Baccalaureate courses is abysmally low—just slightly more than a third, according to the College Board Advocacy and Policy Center.

Although many assume that intellectually advanced children need little help, often the opposite is the case. Peer groups place much emphasis on blending in, yet gifted students inevitably stand out. Sometimes seen as teachers' pets, gifted children are often lightning rods for their peers' criticisms; some react by hiding their talents or deliberately failing. If they are also bored by the curriculum,

gifted students may disengage. Although estimates of gifted students who drop out vary, in 1995, Dr. Sylvia Rimm, clinical professor at Case Western Reserve School of Medicine, suggested that as many as one out of five high school dropouts come from the gifted population.

America cannot afford to lose its most intelligent students. I have often heard students who attend the Research Science Institute express joy at finally feeling like they belong—not just academically, but socially. This bond, which the Center reinforces through frequent reunions and online networking, inspires alumni to self-identify as "Rickoids" years after their RSI experience. Clearly, meeting others who are literally like-minded at a pivotal time in their young lives has a positive and lasting impact.

Gifted students must be afforded an education that allows them to develop their talents fully. Underwritten by corporations, foundations, government grants and private donations, CEE provides all of its programs at no cost to participants—this is important to ensure diversity and universal access. In a time of diminished public funding for education, it is encouraging to know that the private sector continues to step up to ensure an intellectually sophisticated workforce. Educators and parents should be alert to opportunities to enrich gifted students and nourish their social development.

This nation cannot afford to squander their gifts and the significant contribution they can make to the STEM workforce.

Sir Isaac Newton's most famous remark about the process of scientific discovery: 'I do not know what I may appear to the world; but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great Ocean of truth lay all before me.'

(Source: *The Age of Wonder*, page 456)

Ambassador Pickering Shares Benghazi Findings

Research Science Institute (RSI) alumni, CEE Board Members, and special guests gathered in Washington, D.C. for a memorable commentary event on the Benghazi attack with U.S. Ambassador Thomas R. Pickering, CEE Trustee.

Secretary of State Hillary Clinton named Ambassador Pickering, along with Admiral Michael Mullen, former Chairman of the Joint Chiefs of Staff, to head a State Department Accountability Review Board. The Board was tasked with examining the circumstances surrounding the deaths of four Americans, including Ambassador J. Christopher Stevens at the U.S. mission post in Benghazi, Libya on September 11, 2012. Ambassador Pickering provided detailed insight into the attack and entertained questions from CEE attendees. ♦



Ambassador Thomas R. Pickering hosts CEE alumni, friends, and staff in his Washington, D.C. office.

Teacher Enrichment Program (from page 5)

- **West Lafayette, Indiana** featured Barrett Caldwell, Ph.D., Professor of Industrial Engineering at Purdue University, and Clark Gedney, Ph.D., Director of the Bio Media Center for Instructional Computing at Purdue University.
- **Indianapolis, Indiana** featured Michael A. Homoya, Botanist/Plant Ecologist at the Indiana Department of Natural Resources, and Susan McDowell, Ph.D., Associate Professor in Biology at Ball State University.
- **Oak Brook, Illinois** featured Robert Kernstock, Ph.D., Principal Scientist at Astellas Pharma Global Development, and Douglas Sisterson, Research Meteorologist at Argonne National Laboratory.
- **Richmond, Virginia** featured Maura Fierro, Ph.D., R&D Scientist at MeadWestvaco, and Stanley C. Suboleski, Mining Engineer at Evans Energy.
- **Norfolk, Virginia** featured Brad Greene, Computer Engineer at WRSYSTEMS, Jeff Griffin, Navy Customer Trainer at Lockheed Martin, and David Wright, Ph.D., Professor of Physics at Tidewater Community College.
- **Los Angeles, California #1** featured Paul R. Selzer, Principal Calibration Engineer at Baxter Bioscience and X. William Yang, M.D., Ph.D., Professor in the David Geffen School of Medicine at UCLA.
- **Los Angeles, California #2** featured Theodore Clarke, Consultant to NASA/JPL Juno Project and Adjunct Professor at Pasadena City College, and Tia Lyles-

- Williams, Scientist/Bio-manufacturing Engineer at Baxter Bioscience.
- **San Diego, California** featured James Rohr, Ph.D., STEM Outreach Director and Physicist at SPAWAR – Systems Center Pacific, and Lawrence Woolf, Ph.D., Materials Physicist and Engineering Manager at General Atomics Aeronautical Systems.
- **Houston, Texas #1** featured Jillian Duquesnay, P.E., Senior Naval Architect at McDermott International, G. Michael Gaskins, West Africa Operations Manager at ExxonMobil Explorations Company, and Elizabeth Stewart Smith, P.E., 3-D CAD Model & 2-D Drawing Lead for the International Space Station Program at NASA Johnson Space Center.
- **Houston, Texas #2** featured Lisa Buckner, Geophysical Society of Houston Outreach Chair and Seismic Data Loading Team Lead at Hess Corporation, Keith Rappold, Petroleum Engineering Specialist at Aramco Services Company, and Soham Roy, MD, Associate Professor, Director of Pediatric Otolaryngology at UT Health Sciences Center at Houston.
- **San Antonio, Texas** featured Lyle Baie, Ph.D. Geologist from the South Texas Geological Society, and Gloria Gutierrez, MD, Principal Scientist at Southwest Research Institute.

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The Lab Bench is an interactive, free website that contains the Bite of Science presentations and videos. It includes supplementary resources related to Bite of Science topics, targeted content from the Clearinghouse, science news articles, cost-effective laboratory activities, and resources for students.

Teacher Roundtables are hosted by CEE for science teachers to discuss critical science and laboratory education. These meetings serve to share ideas among teachers, including resources and classroom pedagogy.

Public/Private Partnerships brings CEE together with companies and organizations to better serve urban and rural STEM teachers and their students. The TEP/Microsoft Workshop is a partnership with Tysons Corner Microsoft in Virginia. Other public/private partners include Building Engineering and Science Talent (BEST), Capital One Bank, ExxonMobil, George Mason University, Micron Technology, and Purdue University.

The *CEE Blog* serves to encourage discussion about education among STEM stakeholders throughout the world while also providing up to date information on STEM subjects. CEE Board Members and STEM supporters have contributed to the blog. ♦

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The charitable bequest is one of the most flexible ways to make a major gift to the Center for Excellence in Education (CEE). Charitable bequests are easy to make. You enjoy full use of your property during life. And there is no disruption of your lifestyle, no immediate cost to you.

With a charitable bequest, you simply direct that part of your estate to go to one or more of your favorite charities. However, without a will in place, no money or property can go to the charities you wish to help, despite your best intentions.

A charitable bequest can take many forms: you can designate a certain dollar amount, or a certain percent-

age of the value of your estate; or the residue (what is left of value in your estate after all administrative costs and other bequests have been made) goes to CEE. You also can designate exactly how you want your bequest to be used (to fund a particular endowment or program), or you can leave your gift unrestricted so we have the flexibility to meet our changing needs.

It is important to know that you remain in charge of the planning process. You can amend your will by codicil or prepare an entirely new will, giving you the flexibility to meet changing needs and remain a firm supporter of the Center for Excellence in Education. ♦

To Make A Gift From Your IRA:

1. Contact your IRA custodian immediately. Many plans require 2-3 weeks to make distributions.
2. Tell your IRA custodian to make a gift to the Center for Excellence in Education (CEE), tax identification number 52-1256563, before December 31, 2013.
3. Save taxes by taking an IRA "rollover" gift instead of declaring your withdrawal as income on your 2013 income tax return.

Matching Gifts double your contributions to the Center! Please visit www.cee.org to donate online. Ask your employer if your annual contribution is matched by your company. **CEE occasion cards** also are now available. Contribute to CEE to honor life's special occasions. **For more details**, contact Jackie Ortiz at jortiz@cee.org

CEE is a member of the United Way (#2474). The CFC number is 11002. Please consider the Center when making your next contribution.

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About the Center for Excellence in Education

The Center for Excellence in Education (CEE) nurtures careers of excellence and leadership in science, technology, engineering, and math (STEM) for academically talented high school and college students and encourages collaborations between and among leaders in the global community. Founded in 1983 by the late Admiral H.G. Rickover and Joann DiGennaro, President of CEE, the Center's programs help keep the United States competitive in STEM. CEE challenges young scholars and assists them on a long-term basis to become the creators, inventors, scientists, and leaders of the 21st century.

As a private non-profit organization, CEE is not subject to federal and state mandates or political pressures. All CEE programs are open to students

and teachers regardless of race, color, creed, or economic background; the only criterion is academic excellence. CEE sponsors the Research Science Institute (RSI), the USA Biology Olympiad (USABO), and the Teacher Enrichment Program (TEP).

To date, CEE has received funds from the U.S. Department of State, the U.S. Agency for International Development, the National Science Foundation, the United States Information Agency, the National Endowment for the Humanities, the National Security Agency, the Bureau of Indian Affairs, the Department of Agriculture, the Department of Energy, and the Department of Defense. Private individuals and corporations, however, provide most of CEE's funding. ♦