

APEC SCIENCE PRIZE for INNOVATION, RESEARCH and EDUCATION (ASPIRE)

OVERVIEW

The APEC Science Prize for Innovation, Research and Education (“ASPIRE”) is an annual award which recognizes young scientists who have demonstrated a commitment to both excellence in scientific research, as evidenced by scholarly publication, and cooperation with scientists from other APEC member economies.

The ASPIRE Prize supports APEC’s mission to:

- strengthen international science and technology networks;
- enhance economic growth, trade and investment opportunities in harmony with sustainable development, through policies, innovative R&D and technologies, and knowledge sharing; and
- improve linkages and efficiency between research and innovation.

ASPIRE 2015 NOMINATION THEME

Each year the APEC host economy is asked to provide a theme to guide nominations for the ASPIRE Prize to be awarded in their host year. **For its host year of 2015 the Philippines selects "Disaster Risk Reduction: Understanding the Role of Climate Change and Variability" as the ASPIRE nominating theme. This theme focuses on innovative technologies that may help economies adapt to the changing climate, protect the natural environment, and build resilient and sustainable societies.**

Each member economy, through its representative on the APEC Policy Partnership for Science, Technology and Innovation (PPSTI), is invited to nominate one young scientist under the age of 40 to be considered for the 2015 ASPIRE Prize. **Nominees should demonstrate excellence in scientific research, as evidenced by scholarly publication, and cooperation with scientists from other APEC member economies in subjects such as: sustainable development, environmental studies, ecology, disaster management, urban planning, and engineering, among others.**

ELIGIBILITY

Any citizen of an APEC member economy is eligible to be nominated for the ASPIRE Prize. He/she must be living at the time of his/her nomination and be under the age of 40 as of 31 December of that year (i.e., all 2015 nominees must be under the age of 40 as of 31 December 2015).

SELECTION PROCESS

Each member economy, through its representative on the APEC Policy Partnership for Science, Technology and Innovation (PPSTI), is invited to nominate one young scientist under the age of 40 to be considered for the 2015 ASPIRE Prize.

Once nominations are received, PPSTI members rank the nominees through a selection ballot to determine the winner. PPSTI members are asked to judge the nominees based on how well they have demonstrated:

- excellence in scientific research, as evidenced through scholarly publication;
- commitment to cooperation with scientists from other APEC member economies; and
- contribution to the theme selected by that year’s host economy.

ASPIRE PRIZE SPONSORS

Wiley and Elsevier, two of the world's leading publishers of scholarly scientific knowledge, have generously committed to funding prize money in the amount of \$25,000 USD.

PREVIOUS ASPIRE PRIZE CEREMONIES



Dr. Agachai Sumalee, a Thai professor at the Hong Kong Polytechnic University, was awarded the 2014 ASPIRE Prize by Cai Jianlin, China's Vice Minister of Science and Technology. China selected the theme of "Intelligent Transportation" to reflect China's interest in facilitating green and sustainable growth, environmental protection and low-carbon economies. Dr. Sumalee designed a model in collaboration with researchers from across the APEC region that allows highway managers to predict traffic conditions and prevent congestion. This led to ground breaking road traffic management system that slashed

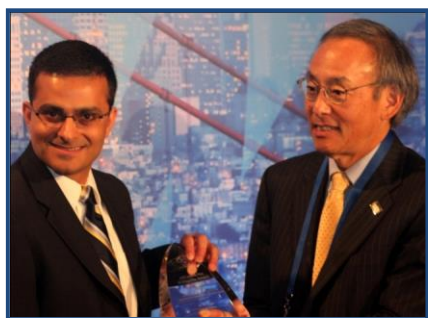
commuting times in the greater Bangkok area.



In 2013 the ASPIRE Prize was awarded by Gusti M. Hatta, Indonesia's Minister of Research and Technology, to Dr. Carissa Klein of Australia. Dr. Klein's research with the University of Queensland uniquely addressed the 2013 ASPIRE nominating theme of "sustainable ocean development" by striking a balance between biodiversity conservation and socioeconomic viability. Her work has helped two APEC member economies—Malaysia and the United States—sustainably zone the ocean for fishing and conservation.



Dr. Rossa Wai Kwun Chiu of Hong Kong, China was awarded the 2012 ASPIRE Prize. Russia selected "health innovation" as its ASPIRE nominating theme, building on its desire that APEC actively foster cooperation among economies in major innovation areas, such as human health, to support healthy lifestyles, productivity and economic growth. Dr. Chiu's groundbreaking research and innovations in chemical pathology has brought non-invasive prenatal diagnosis of fetal genetic diseases into routine clinical use around the world.



In 2011 the ASPIRE Prize was awarded by Nobel Laureate and U.S. Secretary of Energy Steven Chu to Dr. Ali Javey of the United States. The United States selected "green growth" as its ASPIRE nominating theme, building on its desire that APEC actively promote environmentally sustainable economic growth and development, and help our economies successfully transition to a clean energy future. Dr. Javey's innovative work with nanomaterials has made great strides in developing a new generation of solar energy technology and reducing energy consumption in "green electronics."

ENCLOSURES

Within this packet you will find:

- **For PPSTI members:**
 - ASPIRE 2015 Selection Process and Key Dates
 - ASPIRE 2015 Local Letter Template and Local Nomination Form
NOTE: Each APEC member may use this letter and form to seek nominations from within their economy. Each APEC economy will then select one nominee using the next form.
 - ASPIRE 2015 Member Economy Nomination Form
NOTE: Each PPSTI delegate should use this form to nominate one 2015 ASPIRE nominee by May 22, 2015.
 - ASPIRE 2015 Example Applicant Review Sheet
- **For Reference:**
 - Comparable awards
 - Press releases announcing the winner of the ASPIRE Prize



WILEY



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COMPARABLE SCIENTIFIC AWARDS

Albert Einstein World of Science Prize

Selection Criteria

Awarded by the Interdisciplinary Committee of the World Cultural Council to recognize researches “which have brought true benefit and well being to mankind.”

Prize

A diploma, a commemorative medal, and US\$10,000

Copley Medal

Selection Criteria

Awarded by the Medals and Awards Committee of The Royal Society for “outstanding achievements in research.”

Prize

Silver Gilt, gift of 5,000 pounds

Humboldt Research Award

Selection Criteria

Awarded by the Selection Committee of the Alexander von Humboldt Foundation “in recognition of a researcher’s entire achievements to date to academics whose fundamental discoveries, new theories, or insights have had a significant impact on their own discipline and who are expected to continue producing cutting-edge achievements in the future.”

Prize

60,000 EUR

Nierenberg Prize of Science in the Public Interest

Selection Criteria

Awarded by the Scripps Institution of Oceanography for “outstanding contributions to science in the public interest.

Prize

Bronze medal, US\$25,000

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APEC SECRETARIAT PRESS RELEASE: Traffic-busting professor wins 2014 ASPIRE Prize

http://www.apec.org/Press/News-Releases/2014/0917_Aspire_Winner.aspx

Traffic-busting professor wins 2014 ASPIRE Prize



Science, technology and innovation development officials from APEC economies have named Dr Agachai Sumalee, a Thai professor based in Hong Kong, China, the winner of the 2014 APEC Science Prize for Innovation, Research, and Education.

Dr Sumalee was selected from a pool of scientists under the age of 40 for creating a groundbreaking road traffic management system that has slashed commuting times in the greater Bangkok area and was developed in collaboration with researchers from across the APEC region. Cao Jianlin, China's Vice Minister of Science and Technology, presented the award, also known as the ASPIRE Prize, at a ceremony on Wednesday in Beijing.

"As an important contributor to a better life, intelligent transportation will greatly facilitate green and sustainable growth, environmental protection, energy conservation and low-carbon economy in the APEC region," noted Vice Minister Cao. "Among the 20 mega cities around the world, 11 are located in the APEC region."

"Rapid urbanization, combined with the increasing volume of goods and people flows, is weighing significantly on transportation infrastructure across the Asia-Pacific," said Dr. Agus R. Hoetman, Chair of

the APEC Policy Partnership on Science, Technology and Innovation which runs the ASPIRE Prize, whose 2014 theme was “intelligent transportation.”

“Better management of transportation arteries is essential to building smarter, low-carbon cities that support sustainable urbanization and increased capacity for economic growth,” Dr. Hoetman explained. “The development of intelligent transportation solutions is being taken forward by new ideas and innovations that are the product of deepening cooperation between researchers in our region.”

Dr Sumalee, an Associate Professor at Hong Kong Polytechnic University’s Department of Civil and Environmental Engineering, developed a new kind of modelling that allows highway managers to predict traffic conditions and prevent congestion.

The application of Dr Sumalee’s traffic management system by the Thai Expressway Authority has helped to improve road traffic in and around Bangkok and streamline the daily commute for the area’s 12 million people. The economic benefits of the system, when trialed on a 17-mile stretch of Bangkok expressway over a one-year period, was estimated at more than USD1 million, according to an independent assessment.

“We are the first research team to develop a mathematical technique called Stochastic Cell Transmission Modelling to create a real-time, intelligent traffic-management systems that works,” said Dr Sumalee. “Predictive mathematics is relevant to highway traffic management because it helps us analyse the minor events that lead to major delays.”

Dr Sumalee’s system was based on research he conducted in Bangkok at the King Mongkut Institute of Technology, in collaboration with the Thai Expressway Authority, and advanced with assistance from a doctoral student from China. The approach was subsequently tested in partnership with traffic specialists at Kyoto University in Japan and using highway flow data provided by the University of California, Berkeley in the United States.

The ASPIRE Prize recognizes cutting-edge ideas and technologies fostered by exchange between researchers across APEC economies and their contribution to trade and economic growth in the region. Wiley and Elsevier, publishers of scholarly scientific knowledge, were sponsors of the 2014 ASPIRE Prize and its USD 25,000 in prize money.

“Scientific collaboration across the Asia-Pacific region is driving the advancement of groundbreaking research and innovation vital to improving lives and livelihoods,” said Stephen M. Smith, President and CEO of Wiley.

“Young researchers like Dr Sumalee shine a light on the innovative solutions needed to tackle shared transportation and urbanization challenges,” added Young Suk “Y.S.” Chi, Chairman of Elsevier.

For more information on the ASPIRE Prize please visit: <http://www.apec.org/aspire>.

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APEC SECRETARIAT PRESS RELEASE: Winner of 2013 ASPIRE Prize announced

http://www.apec.org/Press/News-Releases/2013/0702_aspire.aspx

ASPIRE Prize winner balances ocean conservation and socioeconomic viability



Dr. Carissa Klein of Australia was awarded the APEC Science Prize for Innovation, Research and Education (ASPIRE) on Monday by Gusti M. Hatta, Indonesia's Minister of Research and Technology.

Dr. Klein's selection is a result of her research with the University of Queensland that uniquely addresses the issue of sustainable ocean development by striking a balance between biodiversity conservation and socioeconomic viability.

"We selected Dr. Klein as the 2013 ASPIRE winner based on her approach to negotiating the fragile balance between ocean conservation and sustainable livelihoods," Minister Hatta said on Monday evening at a ceremony honoring Dr. Klein. "This is at the heart of Indonesia's 2013 APEC priority of sustainable development with equity."

Minister Hatta said that this year's ASPIRE theme, "Sustainable Ocean Development," was chosen by Indonesia because of its desire for APEC to actively promote environmentally and economically sustainable solutions for oceans and waterways. Other criteria for the ASPIRE selection process included excellence in scientific research and commitment to cooperation with scientists across APEC economies.

“The establishment of marine protected areas is often viewed as a conflict between conservation and fishing,” explained Dr. Klein. “But we can zone the ocean to meet the needs of multiple stakeholders, including the fishing industry, mining companies and conservation groups.”

This is one of the issues Dr. Klein’s research effectively addresses. Her work has helped two APEC member economies—Malaysia and the United States—sustainably zone the ocean for fishing and conservation. Using spatial conservation prioritization, her research informed a systematic design of a network of marine protected areas along California’s central coast that accounted for commercial and recreational fisheries in the region.

“The ideal outcome of many conservation plans is meeting its biodiversity goals cost effectively and distributing the benefits or costs equally,” Dr Klein said. “These three aims are also known as ‘triple bottom line solutions’ – efficient, cost-effective and equitable.”

Dr Klein’s work is used by governments and non-governmental organizations to inform marine conservation and sustainable management decisions. She is an Australian Research Council (ARC) Post-Doctoral Research Fellow with the University of Queensland in Brisbane, Australia.

“This year, we received many successful nominees and APEC is honored to select Dr. Klein as a winner,” said Dr. Alan Bollard, Executive Director of the APEC Secretariat.

“Her research, along with all the nominees this year, helps advance APEC’s goals to sustainably conserve and manage our valuable ocean resources.”

The APEC Science Prize for Innovation, Research, and Education is an annual award that recognizes young scientists. Each member economy, through its representative on the APEC Policy Partnership on Science, Technology and Innovation, is invited to nominate one young scientist under the age of 40 to be considered for the ASPIRE Prize. The USD25,000 ASPIRE prize is sponsored by Wiley and Elsevier, two of the world’s leading publishers of scholarly scientific knowledge.

Further information on the ASPIRE Prize, this year’s winner and nominees is available on the [2013 ASPIRE Prize website](#).

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For more information, contact: media@apec.org

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APEC SECRETARIAT PRESS RELEASE: Winner of 2012 ASPIRE Prize announced

http://www.apec.org/Press/Features/2012/0907_aspire.aspx

Winner of 2012 ASPIRE Prize for health innovation announced



Dr. Rossa Wai Kwun Chiu was presented the APEC Science Prize for Innovation, Research and Education (ASPIRE) Prize on Thursday by Dr. Sergey Ivanets, President of Far Eastern Federal University, alongside the APEC Economic Leaders' Week in Vladivostok, Russia.

"Health innovation," the theme for this year's ASPIRE Prize, was chosen to foster cooperation among economies to support healthy lifestyles, productivity and economic growth. The ASPIRE Prize carries a USD 25,000 award.

Dr. Chiu, who is a chemical pathology professor at the Chinese University of Hong Kong's Morningside College and from Hong Kong, China, was selected as the winner of the ASPIRE Prize for her research and development of non-invasive prenatal diagnostic approaches which demonstrated excellence in scientific

research, evidenced by scholarly publication, and cooperation with scientists from other APEC member economies.

Honoring Dr. Chiu on Thursday, Dr. Ivanets said that the ASPIRE Prize recognizes the vital importance of cross-border scientific and technological cooperation in the world's fastest growing region.

"Dr. Chiu embodies the cross-border collaboration that is so vital to advancing the future discoveries that will drive our economies and the health of our citizens," said Ivanets.

Dr. Chiu successfully used next-generation DNA sequencing in DNA plasma of pregnant women for non-invasive prenatal diagnosis of Down syndrome and performed large-scale clinical studies to validate the test. The clinical use of non-invasive testing for Down syndrome detection is now routine in Hong Kong and the United States, based on her findings.

"Collective efforts between researchers allow resources to be used efficiently for the maximal impact of research," said Dr. Chiu, who collaborated with scientists from China, Malaysia, Singapore, Thailand and the United States to advance her research.

"Cooperation enables the rapid dissemination and application of the fruits of research, translating into tangible benefits for citizens across the region."

Dr. Chiu has produced 105 papers in international peer-reviewed journals, including Prenatal Diagnosis, Science, The Lancet, The Journal of Pathology, Hematology/Oncology Clinics of North America, Blood, and Seminars in Fetal & Neonatal Medicine, among others.

On winning the ASPIRE prize, Chiu said, "I sincerely hope that the work of my research group on non-invasive prenatal diagnosis would save the fetuses whom would potentially be lost due to the conventional prenatal diagnostic procedures."

ISTWG Lead Shepherd Dr. Nares Damrongchai lauded Dr. Chiu's research and the contributions of the other ASPIRE nominees. "APEC continues to lead the way in promoting the vital role of health innovation and collaboration in sustaining the region's economic growth," he said.

"The scientific advances of the region's world-class researchers are very significant and playing a critical role in addressing key health challenges."

Ambassador Muhamad Noor, Executive Director of the APEC Secretariat, said that the ASPIRE prize encourages work and research by young scientists.

"APEC recognizes innovations in health as crucial for productivity and economic growth for our member economies," said Noor. "The ASPIRE Prize is indicative of APEC economies' commitment to promoting research and development that improves the quality of people's lives and economic productivity in the region."

The 2012 ASPIRE Prize is sponsored by John Wiley & Sons, Inc., and Elsevier, two of the world's leading publishers of scholarly scientific knowledge.

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For more information, contact: media@apec.org

APEC SCIENCE PRIZE for INNOVATION, RESEARCH and EDUCATION (ASPIRE)

APEC SECRETARIAT PRESS RELEASE: Winner of 2011 ASPIRE Prize announced

http://www.apec.org/Press/News-Releases/2011/0913_aspire.aspx

U.S. Energy Secretary Chu announces APEC ASPIRE prize winner



U.S. Secretary of Energy Steven Chu announced today the winner of the inaugural APEC Science Prize for Innovation, Research and Education (ASPIRE Prize) on the sidelines of the APEC Transportation and Energy Ministerial Conference in San Francisco.

Winning the prize for his innovative research on how nanomaterials drive a new generation of solar energy technology Dr. Ali Javey, an Associate Professor at the University of California, Berkeley and the Co-Director of the Berkeley Sensor and Actuator Center, was recognized for his research commitment to both excellence in scientific research, as evidenced by scholarly publication, and cooperation with scientists from other APEC member economies.

When he awarded the US\$ 25,000 prize to Javey, U.S. Secretary Chu praised the winner for his collaboration with scientists across the APEC region.

"Dr. Javey's research and the research of his fellow ASPIRE nominees have the power to unlock science in ways that will propel our economies," said Secretary Chu. "This is science that can and will help to solve our shared challenges."

Dr. Javey was selected from among a pool of 11 contenders by the APEC Industrial Science and Technology Working Group (ISTWG). The Lead Shepherd of the ISTWG, Madam Wan Zaharah Wan Mohamad, noted that the economies nominated "exceptional and high potential candidates" whose specialization ranged from nanotechnology to nuclear safety.

"The selection committee was very impressed with Dr. Ali Javey's cutting edge research in green electronics. He is an example of a highly accomplished young researcher," Wan Zaharah said in a written statement. "All the nominees are winners for their economies and for the APEC region as each have its own merits and significant contributions to science."

Ambassador Muhamed Noor, Executive Director of the APEC Secretariat, expressed hope that the ASPIRE Prize will continue to encourage young scientists to conduct world-class research in the region.

"The ASPIRE prize demonstrates APEC's commitment to supporting research and development in the region and we also recognize that science and technology is an integral component for economic development," said Noor as he offered his congratulations to Dr. Javey.

Dr. Javey is the first recipient of the ASPIRE Prize. "In receiving this prize I have to acknowledge the talented scientists I have the privilege of working with around the world and, in particular, in the APEC region," he said. "It is by working together that we are able to do the most exciting scientific research."

Dr. Ali Javey is an Associate Professor at the University of California, Berkeley and the Co-Director of the Berkeley Sensor and Actuator Center. He has developed low-cost, flexible, and lightweight photovoltaic cells that can achieve a theoretical efficiency of 20 percent or more and can be easily rolled onto roofs and other surfaces. Dr. Javey has also developed transistor arrays that use a fraction of the power of conventional silicon transistors. He has produced 81 publications with over 5,000 citations in peer-reviewed journals including Nature, Advanced Materials, and the Journal of the American Chemical Society.

More information on the other nominees can be found at <http://www.apec.org/aspire2011>. The ASPIRE Prize is sponsored by John Wiley & Sons, Inc. and Elsevier.

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