UC SANTA BARBARA

THE Current

June 15, 2006
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2006 Millennium Technology Prize Awarded to UCSB's Shuji Nakamura

Professor Shuji Nakamura of the University of California, Santa Barbara has been awarded the 2006 Millennium Technology Prize for his invention of revolutionary new light sources: blue, green, and white light-emitting diodes and the blue laser diode.

The award, which includes a cash prize of one million Euros (approximately $1.3-million), was announced in Helsinki, Finland early today. The Millennium Technology Prize is the world's biggest technology award. Presented by Finland's Millennium Prize Foundation, it recognizes outstanding technological achievement aimed at promoting quality of life and sustainable development.

Presented only in alternate years, the Millennium Technology Prize was first awarded in 2004 to Tim Berners-Lee, developer of the World Wide Web.

Nakamura is a professor of materials and of electrical and computer engineering in UC Santa Barbara's College of Engineering, where he is also co-director of the Solid State Lighting and Display Center. The award will be presented to him by the President of Finland at a ceremony in Helsinki on September 8.

"Professor Nakamura has achieved the 'holy grail' of semiconductor research by developing blue, green and white light-emitting diodes and the blue laser diode," said Pekka Tarjanne, chairman of the International Award Selection Committee and

former director-general of the International Telecommunications Union.

"His technological innovations in the field of semiconductor materials and devices are groundbreaking."

Tarjanne said that Nakamura's breakthroughs have a variety of important applications across an array of fields: in communication and information, for improving optical data storage and display; in energy and the environment, by enabling energy-efficient, solid-state lighting and power-switching technology; and in health care and life sciences, through ultraviolet light sources for water purification.

Nakamura is known for his technological wizardry with semiconducting gallium nitrides and is widely recognized as the world pioneer in light emitters based on the wide-bandgap semiconductor gallium nitride (GaN) and its alloys with aluminum and indium.

"Our entire campus joins me in applauding this extraordinary international recognition of Professor Shuji Nakamura's pioneering research, which has led to the invention of revolutionary new energy-saving light sources that are better and brighter than conventional lighting," said UCSB Chancellor Henry T. Yang. "His work is making important contributions toward improving the quality of life and the health of our planet. We are overjoyed by this news and extremely proud of our distinguished colleague, to whom we offer our heartfelt congratulations."

Matthew Tirrell, dean of the College of Engineering at UC Santa Barbara, said the Millennium Technology Prize "is a recognition of the singular technological accomplishments of Shuji Nakamura, which are now being further exploited by Professor Nakamura and a group of UC Santa Barbara colleagues to achieve breakthroughs not only in solid state lighting and displays, but also in energy efficient systems that will have impact on people's lives for decades to come."

Nakamura joined the UC Santa Barbara faculty in 2000 and in 2001 was appointed to the Cree Chair in Solid State Lighting and Display.

Reacting to the prize announcement, Nakamura said: "I would like to thank the Millennium Prize Foundation and the people of Finland for recognizing my research in solid state lighting and its implications. I am very honored to receive this Millennium Technology Prize. The University of California has a motto; the English

translation is ‘Let there be light.' This is a very good motto for our university. It also could serve as a motto for my own research. I hope that, as a result of my work, someday there will be lighting in parts of the world where today there is not even electricity.

"I also hope this award helps to raise awareness of the energy savings of using LEDs in illumination, so that the world can realize substantial energy savings," Nakamura added. "I plan to donate some of these Millennium Prize funds to further research at universities and groups that help to implement solid state lighting in the third world, like the group called Light-Up-The-World or Engineering Without Borders."

Before joining the UCSB faculty, Nakamura had worked in research for Japan's Nichia Chemical. While at the company in the early 1990s, he single-handedly initiated the development of novel vapor-phase epitaxial growth techniques to obtain single-crystal GaN heteroepitaxial thin films with excellent structural and electrical properties.

His crowning achievement was the development of the blue laser.

At UC Santa Barbara, Nakamura continues to develop GaN thin-film technology.

Nakamura earned his undergraduate, master's, and doctoral degrees at Japan's University of Tokushima.

He is the recipient of numerous prestigious awards including two Japan Society of Applied Physics awards, Nikkei Best Products and Excellent Products awards, a Society of Information Display Special Recognition Award, the IEEE Laser and Electro-Optics Society Engineering Achievement Award, the Materials Research Society Medal, the IEEE Jack A. Morton Award, and the Benjamin Franklin Medal in Engineering. He also has been elected to membership in the National Academy of Engineering.

Officials of the Millennium Prize Foundation noted that more than 100 nominations in all fields of technology were received from 32 countries for the 2006 Millennium Technology Prize.

Nakamura's selection was made unanimously by the board of the Finnish Technology Award Foundation based on the recommendation of the International Award Selection Committee.

The Millennium Technology Prize is awarded by the Millennium Prize Foundation, an independent Finnish fund. It was created and financed by a partnership of Finnish organizations, Finnish industry and the Finnish state with the objective of promoting technology's role in improving quality of life and enhancing Finland's reputation as a high-technology country.

NOTES to editors and reporters:

More information about the Millennium Technology Prize is available at: http://www.millenniumprize.fi/

More information about UCSB's Solid State Lighting and Display Center is available at: http://www.ssldc.ucsb.edu

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