UC SANTA BARBARA

THE Current

December 13, 2016

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Invention Honors

UC Santa Barbara professors James Speck and Larry Coldren are among the newest fellows of the National Academy of Inventors (NAI).

Both professors in the UCSB College of Engineering, Speck and Coldren are recognized by NAI for their “highly prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development and the welfare of society.”

“We are doubly honored that both Professors Coldren and Speck have been elected fellows of the National Academy of Inventors,” said UCSB Chancellor Henry Yang. “This proud professional distinction acknowledges not only their creative and original research contributions, but the tangible applications of that innovative research for the betterment of our global society.”

The two professors join 173 other new fellows to the prestigious organization for 2016, and bring to eight the total number of UCSB faculty elected to the 6-year-old national academy.

“Professor Coldren’s contributions in integrated photonic devices, including wavelength tunable lasers, and Professor Speck’s in photonic materials for LEDs have enabled major advances in ever-higher capacity communication networks and energy-efficient lighting that have positively impacted our daily lives,” said Rod Alferness, dean of the UCSB College of Engineering. “We are very proud of their achievements and their recognition by the National Academy of Inventors.”

“It is a great honor to receive this recognition from my peers,” said Coldren, UCSB’s Fred Kavli Professor of Optoelectronics and Sensors, who was noted for his work in optoelectronic devices and materials, which have applications in communications, switching and sensing, to name a few. His research currently focuses on components and fabrication techniques for photonic integrated circuits (PICs).

Some of Coldren’s best-known work is in the areas of widely tunable lasers and vertical-cavity surface-emitting lasers. His inventions have led to several patents and the establishment of startup companies Optical Concepts in 1991 and Agility Communications in 1998. His innovative concepts and high-performance designs continue to be influential in the industry today.

In the academic sphere, Coldren, who joined the UCSB Department of Electrical and Computer Engineering faculty in 1984, is the primary author of a textbook on diode lasers and PICs. Now in its second edition, the book has been the most widely used textbook on the subject for the past decade, influencing a generation of students in the field. Additionally, he is a professor of materials at UCSB, and was acting dean of the College of Engineering 2009-11. He is also the director of the campus’s Optoelectronics Technology Center and a member of the Solid State Lighting & Energy Electronics Center (SSLEEC).

Coldren has been elected as a fellow of several prestigious organizations, including the Institute of Electrical and Electronics Engineers (IEEE), the Optical Society of America (OSA) and the Institute of Electronics Engineers in the UK. He is a member

of the National Academy of Engineering and the recipient of the OSA's 2004 John Tyndall Award, the of IEEE's 2009 Aron Kressel and 2014 David Sarnoff awards.

A member of the UCSB engineering faculty since 1990, James Speck's work focuses on investigating and improving the growth, properties and quality of electronic materials, most notably in the area of wide bandgap nitrides that are found in energy-efficient semiconductor materials, such as those in LED lighting.

"It is a great honor and surprise to be elected to the NAI," said Speck, who holds the campus's Seoul Viosys Chair in Solid State Lighting. Known for his pioneering work with gallium nitride (GaN) crystals — a high-performance material that is notoriously difficult to produce and is the foundation of the highly sought bright blue LED — he has been awarded the 2010 Aron Kressel Award from the IEEE Photonics Society for his work on nonpolar and semipolar GaN-based materials and devices.

Other honors include the 2007 Quantum Device Award from the International Symposium on Compound Semiconductors, and election to the inaugural class of fellows of the Materials Research Society in 2008. In 2009, Speck was elected to the American Physical Society. He is also a member of the executive committee at UCSB's SSLEEC.

Speck credits the "outstanding collaborative research environment at UCSB, which has resulted in many joint patents." His collaborations led to the founding of lighting company Soraa in 2008.

The new NAI fellows will be inducted April 6, 2017, as part of the sixth annual Conference of the National Academy of Inventors at the John F. Kennedy Presidential Library & Museum in Boston. U.S. Commissioner for Patents Andrew Hirshfeld will provide the keynote address for the ceremony. Fellows will be presented with a special trophy, medal and rosette pin in honor of their outstanding

accomplishments.

The 2016 NAI fellows will be recognized with a full-page announcement in The Chronicle of Higher Education January 2017 issue, and in upcoming issues of Inventors Digest and Technology and Innovation.

About UC Santa Barbara

The University of California, Santa Barbara is a leading research institution that also provides a comprehensive liberal arts learning experience. Our academic community of faculty, students, and staff is characterized by a culture of interdisciplinary collaboration that is responsive to the needs of our multicultural and global society. All of this takes place within a living and learning environment like no other, as we draw inspiration from the beauty and resources of our extraordinary location at the edge of the Pacific Ocean.