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New Research Horizons

Two UC Santa Barbara faculty members — cryptographer Stefano Tessaro and condensed matter physicist Andrea Young — have been selected to receive research fellowships from the Alfred P. Sloan Foundation for 2017. The fellowships, awarded yearly since 1955, honor those early-career scholars whose achievements mark them as the next generation of scientific leaders.

“Stefano Tessaro, who won an NSF CAREER award last year, is providing a deeper and more rigorous understanding of encryption for cyber security,” said Joe Incandela, UCSB interim vice chancellor for research. “Andrea Young has won many awards recently, including one from the Packard Foundation for cutting-edge breakthroughs related to the creation of new states of matter with the potential for extraordinary technological advances — most notably in ultra-thin graphene samples. We are extremely pleased to have such outstanding young researchers on our campus.”

Tessaro and Young will each receive a $60,000 fellowship to be used as they wish to further their research.

“I am honored and thrilled to have been selected,” said Tessaro, whose work focuses on ensuring the security of the encryption algorithms we use every day to send our private information over the internet. “Cryptography has become of paramount importance and its deployment has been growing steadily over the last few years,” he added. “The fellowship will support my research efforts in building solid theoretical foundations that support the development of cryptographic methods. The

hope is that the answers resulting from this work will play a significant role in securing our digital infrastructure."

Andrea Young, meanwhile, develops and investigates the properties of new materials whose behavior reflects the rules of quantum mechanics even on macroscopic scales.

"I'm very grateful to Sloan for the recognition," Young said. "Pushing the limits of what we understand about interacting quantum particles is essential for developing electronic devices for the long-term future, and it is far-sighted to invest in a field that can both expand our understanding of basic physics and ultimately yield new functionality for electronic hardware."

Past Sloan Research Fellows include many towering scientific figures, including physicists Richard Feynman and Murray Gell-Mann, and game theorist John Nash. Forty-three former fellows have received a Nobel Prize in their respective field, 16 have won the Fields Medal in mathematics, 69 have received the National Medal of Science, and 16 have won the John Bates Clark Medal in economics, including every winner since 2007.

"The Sloan Research Fellows are the rising stars of the academic community," said Paul L. Joskow, president of the Alfred P. Sloan Foundation. "Through their achievements and ambition, these young scholars are transforming their fields and opening up entirely new research horizons. We are proud to support them at this crucial stage of their careers."

The Alfred P. Sloan Foundation is a philanthropic, not-for-profit grant making institution based in New York City. Established in 1934 by Alfred Pritchard Sloan Jr., then-president and chief executive officer of the General Motors Corporation, the Foundation makes grants in support of original research and education in science, technology, engineering, mathematics, and economics.

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.