

UC SANTA BARBARA

THE **Current**

April 9, 2000

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UCSB PHYSICIST IS SLOAN FELLOW

Leon Balents, an assistant professor of physics at the University of California, Santa Barbara, has received a prestigious Alfred P. Sloan Research Fellowship, joining a small group of UC Santa Barbara physicists to win the honor in recent years.

The award will infuse \$40,000 over two years into Balents' research. A theorist in condensed matter physics, the assistant professor's research aims to understand how the basic microscopic constituents of matter --- electrons, atoms, molecules --- act together to produce macroscopic phenomena.

Currently, Balents is probing into spin conduction in carbon nanotubes, which are lattices of carbon atoms rolled up like a coil of chicken wire and the size of 1 ten-thousandth the thickness of a human hair. He is studying how the electron's spin and its charge act together to produce magnetism in nanotubes, which may, someday, be the wires in futuristic "spintronics" technology, using electronic magnetism instead of charge for computing.

In addition to the nanotube work, Balents is developing theoretical models for a variety of other exotic magnetic materials such as low-density electron systems and high-temperature superconductors.

Balents joined the UC Santa Barbara faculty in July 1999 after a year in the theoretical physics department of Bell Laboratories/Lucent Technologies in New Jersey. He holds a Ph.D. in physics from Harvard University and spent four years as a research fellow at the Institute for Theoretical Physics at UC Santa Barbara.

Only 104 scientists from the United States or Canada were chosen this year to receive a fellowship, which "stimulates fundamental research by young scholars of outstanding promise,"

according to the Alfred P. Sloan Foundation.

At least seven UC Santa Barbara physics department faculty members have received the research fellowship in recent years.

To date, 24 Sloan Fellows have won Nobel Prizes later in their careers, thirteen have been awarded the prestigious Fields Medal in mathematics and hundreds have received other honors.

Editors: A J-peg photo of Leon Balents is available on request.

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.