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Physicist David Awschalom Awarded UCSB Faculty's Top Honor

The faculty of the University of California, Santa Barbara has bestowed its highest honor on David Awschalom, an internationally recognized researcher who is a professor of physics and of electrical and computer engineering at UCSB. Awschalom has been named Faculty Research Lecturer for 2008.

In announcing the award, the UCSB Academic Senate said Awschalom "has made remarkable contributions to our campus in the fields of physics and engineering." Awschalom is director of the Center for Spintronics and Quantum Computation and associate director of the California NanoSystems Institute, a collaborative endeavor between UCSB and UCLA. Awschalom's research group explores magnetic and electron spin dynamics within a variety of semiconductor-based nanoscale systems. His fundamental discoveries are opening the door to new opportunities for research and technology in the emerging fields of semiconductor spintronics and quantum computation.

The Faculty Research Lectureship was established in 1955; Awschalom is the 53rd recipient of the honor. His Faculty Research Lecture will be on campus and free and open to the public. The date has not yet been determined.

Last year's recipient of the prestigious honor, Steven K. Fisher, a neurobiologist, presented the award to Awschalom at a meeting of the Academic Senate's Faculty Legislature. Fisher said the award's selection committee picked Awschalom "for a

combination of outstanding research contributions, scholarship, scientific leadership, broad contributions to enriching the intellectual stature of UCSB, and for his outstanding role as a teacher and mentor."

Fisher noted that Awschalom's dedication to teaching "will be one of his most lasting contributions to the stature of our campus." Since coming to UCSB in 1991, Awschalom has mentored 59 postdoctoral fellows and graduate students, 15 of who now hold positions in academe. "It is hard to imagine a clearer picture of scientific and academic leadership than that presented by the career of Professor Awschalom," said Fisher.

Another previous winner of the Faculty Research Lectureship, Evelyn Hu, the director of the California NanoSystems Institute and a professor of electrical and computer engineering, expressed her "delight" at Awschalom's selection. "This important recognition is a fitting tribute to the enormous scope and impact of David's research," said Hu. "David has also made many other significant contributions to the research and education infrastructure of this campus. His excellent and witty expositions of his work are outstanding, and I and others will be looking forward to his Faculty Research Lecture with considerable anticipation."

In acknowledging receipt of the honor, Awschalom said: "I am extremely surprised and deeply honored to receive this award. This level of appreciation from my colleagues across the campus means a great deal to me. Moreover, given the breadth of excellence and the wide range of faculty activities spanning our university, to be selected represents a special honor. I must share this recognition with my students, for it is a reflection of their excellence and dedication, as well."

Awschalom works in the areas of nanoscience known as quantum computing and spintronics – the latter being a discipline that deals with measuring and manipulating the endless spinning of electrons about their own axis. "While this may seem to be a pretty rarified area to most of us," said Fisher, "its impact has been enormous. Understanding the behavior of electrons in materials affects the performance of semiconductors, those critical components familiar to all of us as parts of our computers or cell phones and many other electronic devices." Research in spintronics, he added, has also produced technological advances that have resulted in an enormous increase in the storage density of computer hard drives.

Awschalom's discoveries in the area of quantum information processing include creating and controlling quantum spin coherence in semiconductors, results that have generated international efforts aimed at exploiting this phenomenon for the construction of future quantum computers.

Fisher said that discoveries made by Awschalom and his research group have resulted in "a whole new field of endeavor."

A member of the National Academy of Sciences, Awschalom is also a fellow of both the American Association for the Advancement of Science (AAAS) and of the American Academy of Arts and Sciences. In 2005, he received the Oliver E. Buckley Prize, given annually by the American Physical Society for fundamental contributions to experimental studies of quantum spin dynamics and spin coherence in condensed matter systems. His other honors and awards include the Agilent Europhysics Prize, the AAAS Newcomb Cleveland Prize, the Outstanding Investigator Prize from the Materials Research Society, and the International Magnetism Prize and Néel Medal from the International Union of Pure and Applied Physics. His research has been chronicled in his more than 300 scientific journal articles, and has also been featured in The New York Times, The Wall Street Journal, San Francisco Chronicle, Dallas Morning News, Discover magazine, Scientific American, Physics World, and New Scientist.

Awschalom received his Ph.D. in experimental physics from Cornell University, and then served as research staff member and manager of the Nonequilibrium Physics Department at the IBM Watson Research Center in New York. In 1991, he joined UC Santa Barbara as a professor of physics, and in 2001 was additionally appointed a professor of electrical and computer engineering.

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.