Studies showcase superconductivity savvy at UH

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Four graduate students present award-winning, multidisciplinary work at recent competition

Furthering superconductivity and related research, University of Houston students in science and engineering showcased their original research in a recent campus competition.

Four UH graduate students won top honors and prize money at the 29th Semiannual Texas Center for Superconductivity at the University of Houston (TcSUH) Student Symposium. The symposium series highlights original, multidisciplinary research efforts of undergraduate and graduate students.

Nine students competed, each giving a 15-minute presentation, followed by a brief question and answer period. A faculty panel judged each presenter on originality and quality of research, quality of presentation and skillful use of visual aids.

"The symposium provides students with a forum to gain experience in formally presenting their work, as well as showcasing their research results to an audience that includes peers and mentors," said Allan Jacobson, director of TcSUH, professor of chemistry and the Robert A. Welch Chair of Science. "A crucial building block for developing scientists includes successful communication of your research to the public and your colleagues."

The winners included one student from the Cullen College of Engineering and three students from the College of Natural Sciences and Mathematics. First place and $200 went to Prashant Gijavanekar, who received his master's degree in materials engineering from UH this spring; second place and $100 went to Hong-Yi Chen, a doctoral student in physics; and a tie for third place and $50 each went to Hugo Sanabria and Xiangkun Yu, both graduate students in physics.

"As a kid, I was always fascinated with mechanical gadgets. I used to tear them apart to figure out how they worked and then assembled them back," said Gijavanekar, whose project leader is UH Mechanical Engineering Professor Kamel Salama. "For the last two years, I have worked on magnesium diboride superconductors, and being a research fellow at TcSUH was an incredible experience that provided me the opportunity to expose myself to the advanced engineering techniques in the field of superconductivity."

Working toward his doctorate in the theory of superconductivity, Chen has had seven papers published thus far in Physics Review B. In his fifth year at UH and preparing to graduate in fall 2005, he works in the HTS Theoretical Materials Research group at TcSUH under Physics Professor Chin-Sen Ting, who is also his project leader.

Led by John Miller, an associate professor of physics at UH, Sanabria said, "My latest work involves measuring the dielectric properties of biological systems, in which I got interested because of the application of physics in areas like biology. Applications of knowledge acquired in this area help in developing novel technologies like nanobiology and biosensors for detecting biological warfare agents."

Yu, a Ph.D. student whose project leader is Distinguished University Professor of Physics Wei-Kan Chu, said, "Working as a research assistant under the guidance Professor Chu at TcSUH has given me

insight into what the necessary qualities are of physics researchers. And collaborating with a highly qualified crew – all hardworking, all part of a group – I also discovered the valuable spirit of team work."

Source: University of Houston