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Joan Magruder

Five Scientists in U.S. Get Nobels, Including Walter Kohn, UCSB

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By JIM HEINTZ, Associated Press Writer

STOCKHOLM, Sweden--Five scientists at universities in the United States won the Nobel Prizes in physics and chemistry today for work exploring the inner structure of matter. Their research has far-reaching implications, from a new generation of microelectronics to understanding the destruction of Earth's ozone layer.

Three physicists will share the prize for discovering how electrons can change behavior, work that could lead to further advances in microelectronics.

And two researchers were named co-winners of the chemistry prize for theoretical work on the quantum properties of molecules.

In each case, the winners will share the \$978,000 prizes. The chemistry award went to Walter Kohn of the University of California-Santa Barbara and John Pople of Northwestern University.

Kohn, a 75 -year-old native of Austria, has taught at U.S. institutions since 1950. He was cited for development of density-functional theory in the 1960s. It simplifies the mathematical description of the bonding between atoms that make up molecules.

His approach makes calculations according to an average number of electrons located in any point, rather than trying to establish the motion of each electron in every atom in a molecule. This reliable model has enabled scientists to study large molecules that previously were too complex and unwieldy to understand.

Kohn, a physicist, said of winning the chemistry prize: "You may think they made a mistake." The prize, he said, recognizes that science has a "kind of unity" and that "interdisciplinary acts can be fruitful."

Pople, a 72 -year-old British citizen, joined the Northwestern faculty in 1986. He was cited for developing computer techniques to test the chemical structure and details of matter. In medicine, researchers use Pople's quantum chemistry methods to simulate the effects of proposed drugs to fight HIV infection.

The laureates in physics are Robert B. Laughlin of the United States, Horst L. Stormer of Germany and Daniel C. Tsui, a native of China who is now an American citizen.

According to the citation, the three men discovered a new form of "quantum fluid"- fluids such as liquid helium that have certain properties in common, such as superfluidity, or the absence of energy resistance at ultra-low temperatures.

Mansour Shayegan, a colleague of Tsui's at Princeton, said all three "have done wonderful work."

"They have essentially discovered a new state of condensed matter," he said.

All the prizes are announced in Stockholm, except for the peace prize which is given in Oslo, Norway. The prizes are presented on Dec. 10, the anniversary of the death of Alfred Nobel, the Swedish industrialist and inventor of dynamite who established the prizes in his will.

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