UC physicist honored by American Physical Society

November 26, 1960

George Feher, Professor of Physics at The University of California's School of Science and Engineering, has been awarded the 1960 American Physical Society Prize, sponsored by Hughes Aircraft Company.

Established in 1959, the Prize is awarded annually for work performed and published by a person while under the age of 33. The Prize carries a cash award of $2500. Last year's recipient was Donald A. Glaser, Professor of Physics at The University's Berkeley campus, who this year was named Nobel Laureate in Physics.

The Prize was given to Feher at a dinner Friday night (November 25) at the Quadrangle Club as part of the Thanksgiving meeting of the American Physical Society at the University of Chicago. It was presented by the Society's President, Dr. Victor Weisskopf, Massachusetts Institute of Technology.

The citation said the Prize was awarded to Feher for originating and developing the Electron Nuclear Double Resonance (ENDOR) technique and for applying it to solid state and nuclear research problems.

Feher, who is now 36, came to the School of Science and Engineering this Fall. He had been a member of the Staff of the Bell Telephone Laboratories, Murray Hill, New Jersey. He attended The University of California, Berkeley, and received his Ph.D. in Physics.

In the ENDOR technique, Feher has produced a method of bringing the details of atomic and nuclear structure into sharper focus than has been possible before.

He takes advantage of the known fact that both electrons and nuclei behave like tiny bar magnets and when placed in a magnetic field precess like a top in the earth's gravitational field. When an electromagnetic radiation (radio wave) is applied in tune (resonant) at the precession frequency, a measurable amount of power is absorbed from the radio wave. Nuclei absorb a very small (sometimes unmeasurably small) amount of power, while electrons, having approximately a thousand times larger magnetizations, absorb a much larger amount of power.

Feher's ENDOR technique uses electronic and nuclear resonances simultaneously. By inducing changes in the weak nuclear resonances, he produces large measurable changes in the electron resonance signal. The method thus provides scientists with a powerful tool to study the magnetic interaction between atomic nuclei and electrons, an important aspect in understanding the structure of matter. In addition, it provides a means of investigating weak nuclear resonance signals, thereby making it possible to determine important characteristics of nuclear structure.