Dr. Hannes Alfven accepts Nobel Prize in physics

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"Wonders of the night sky" which have puzzled mankind for thousands of years are "again at the center of science," Dr. Hannes Alfven, professor in residence at UCSD, said Friday (Dec. 11) in Stockholm.

Alfven, who received the Nobel Prize in physics Thursday (Dec. 10) in Stockholm, presented his Nobel laureate lecture before a distinguished audience of leaders in the sciences, arts and humanities.

Alfven was honored with the Nobel award for his pioneer work in magnetohydrodynamics and plasma physics. In his Nobel lecture he drew specific attention to the two realms where progress in these fields has been particularly fruitful - space research and thermonuclear technology.

One of the fundamental problems facing science today is unravelling the mystery of how our solar system was formed, Alfven said.

"We are trying to write the scientific version of how our earth and its neighbors once were created. From a-- shall we say-- philosophical point of view, this is just as important as the structure of matter, which has absorbed most of the interest during the first two-thirds of this century."

Alfven said "it was the wonders of the night sky, observed by Indians, Sumerians or Egyptians, that started science several thousand years ago. It was the question why the wanderers-- the planets-- moved as they did that triggered off the scientific avalanche several hundred years ago. The same objects now are again in the center of science-- only the questions we ask are different."

Today, Alfven pointed out, man asks "how to go there, and we also ask how these bodies were formed."

Spacecraft missions to the moon and other planets will yield valuable Information in years ahead, Alfven said. But he argued that missions to smaller celestial bodies - asteroids and comets - might be of even greater significance In helping man to understand the origin of the solar system, Including earth itself.

He explained that much of the primitive information about the formative processes which was stored an earth and the planets in the early stages of evolution has since been obliterated by heat, weathering and other influences. But on asteroids, comets and meteoroids, such primordial data laid down billions of years ago probably is still relatively intact.

"They give us, so to say, snapshots showing the sequence of events when a planet like earth was formed," Alfven observed.

Classical mechanics and electrodynamics, fields of physics considered obsolete since the beginning of this century, are today enjoying a revival, Alfven said. These two older fields are new "very serious competitors" for such newer branches as atomic and nuclear physics, he noted.

Classical mechanics is being rejuvenated, he said, because it is "essential not only for calculating the trajectories of spacecraft, but also for the study of the motion of the natural celestial bodies during their

evolutionary history." Electrodynamics also is of decisive importance, said Alfven, because of its application "to the theory of magnetized plasmas, which is basic both for thermonuclear research and for astrophysics in general."