Lockheed Martin Solar Physicist Elected To National Academy Of Sciences

Dr. Alan M. Title, senior fellow at the Lockheed Martin Space Systems Advanced Technology Center (ATC) in Palo Alto, has been elected to the National Academy of Sciences in recognition of his distinguished and continuing achievements in original research. Election to membership in the Academy is considered one of the highest honors that can be accorded a U.S. scientist or engineer.

The National Academy of Sciences is a private organization of scientists and engineers dedicated to the advancement of science and its use for the general welfare. It was established in 1863 by a congressional act of incorporation, signed by Abraham Lincoln, which calls on the Academy to serve as an official adviser to the federal government, upon request, in any matter of science or technology.

"Dr. Title's extraordinary research accomplishments in solar physics have revolutionized our understanding of the fundamental physical processes of the Sun and, by extension, billions of other stars in the universe," said Aram Mika, vice president, Lockheed Martin Space Systems Advanced Technology Center. "His election to the National Academy recognizes a brilliant career of sustained contributions to space science."

Title's discoveries are changing the way that scientists think about evolution and nature of solar magnetic fields. This has fundamental consequences for our understanding of our star, the Sun, as well as the structure and nature of other stars. One of the most prominent themes in all of his work is the understanding of the dynamics of magnetic flux at the solar surface, from global scales down to the limits of angular resolution. He particularly focuses on themes that stress the large-scale effects of small-scale phenomena. Additionally, he has led the development of ground and space based instruments for solar physics research.

Prior to joining Lockheed Martin in 1971, Dr. Title was a research associate at Harvard University from 1967-71 and a National Academy of Sciences research fellow at the Smithsonian Astrophysical Observatory from 1966-67.

Dr. Title is the Principal Investigator for NASA's solar telescope on the Transition Region and Coronal Explorer (TRACE) mission. The TRACE telescope was developed under his direction at the ATC. Since its launch on April 1, 1998, TRACE has provided millions of images that reveal activity in the solar atmosphere in stunning detail and include the first detailed observations of a magnetic energy release, called a magnetic reconnection.

He also serves as a co-investigator responsible for the Michelson-Doppler Imager (MDI) science instrument on the NASA-European Space Agency Solar and Heliospheric Observatory (SOHO). MDI, also designed and built at the ATC, uses optical techniques to measure shaking at the visible surface of the Sun that yields insight into activity and structure deep in the solar interior.

He currently is the U.S. principal investigator responsible for development, at the ATC, of the Focal Plane Instrument Package on the Japanese Solar-B mission. The primary goal of the Solar-B mission, scheduled for launch in 2006, is to understand the physical processes responsible for dynamics and heating of the outer solar atmosphere.

Dr. Title also has been named as the principal investigator for the Atmospheric Imaging Assembly (AIA) on NASA's Solar Dynamics Observatory (SDO), scheduled for launch in 2008. The AIA instrument, under construction at the ATC, is a four-telescope assembly that will image the full disk of the Sun at high resolution. He also will serve as a co-investigator for another SDO instrument being built at the Lockheed Martin facility in Palo Alto, the Helioseismic and Magnetic Imager.

In addition to his election to the National Academy of Sciences, Dr. Title has been presented a NASA Public Service Award for outstanding science achievement and vital contributions to NASA's scientific research programs.

In June 2001, he received the Hale Prize from the American Astronomical Society. The award, presented in memory of George Ellery Hale, is conferred once every two years to a scientist for outstanding contributions, over an extended period of time, to the field of solar astronomy. Dr. Title is the first recipient of the prize to be associated with a private company. The Hale Prize citation reads: "For exceptional leadership in developing multiple high resolution telescopes and interpreting their data to advance our understanding of the Sun, and for his generous public service on behalf of the solar and solar terrestrial communities."

In 2003, Dr. Title was elected to the National Academy of Engineering. His election citation reads: "For pioneering development of elegant optical systems that enable precise space-based studies of the Sun."

Headquartered in Bethesda, Md., Lockheed Martin employs about 130,000 people worldwide and is principally engaged in the research, design, development, manufacture and integration of advanced technology systems, products and services. The corporation reported 2003 sales of $31.8 billion.

For more information about Lockheed Martin Space Systems, see our web site at http://lmms.external.lmco.com/

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