Lockheed Martin Physicist Inducted Into Silicon Valley Engineering Hall Of Fame

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Dr. Alan M. Title, physicist at the Lockheed Martin Space Systems Advanced Technology Center (ATC) in Palo Alto, was inducted last evening into the Silicon Valley Engineering Hall of Fame. The Silicon Valley Engineering Hall of Fame Award recognizes engineers/technologists/scientists in the region who have demonstrated outstanding professional achievement and have made significant contributions to Silicon Valley and the Greater Bay Area communities. The award is conferred by the Silicon Valley Engineering Council.

(Photo: http://www.newscom.com/cgi-bin/prnh/20100219/SF57847)

As a scientist, Alan Title studies the Sun. His primary research interest is the generation, distribution, and effects of the solar magnetic field throughout the Sun's interior and outer atmosphere. Building on accumulated knowledge, through observation and experimentation, he asks new questions of the Sun and formulates hypotheses on how it might work.

As an engineer, Alan Title designs, develops, builds, and flies new instruments that will gather the data necessary to test those hypotheses. He led the development of tunable bandpass filters for space-based solar observations, a version of which is currently operating on the JAXA/ISAS Hinode spacecraft. He also invented a tunable variation of the Michelson Interferometer that has been employed on the SOHO spacecraft, the Solar Dynamics Observatory (SDO), the Global Oscillations Network Group of the National Solar Observatory as well as other ground-based systems.

Extraordinarily dedicated to advancing public awareness of science, Dr. Title has supported activities at the Tech Museum, Chabot Observatory, Boston Museum of Science, the National Air and Space Museum, and the Hayden Planetarium. In addition, his educational outreach funding has supported a yearly summer program for Stanford undergraduates, and the Stanford Hass Center activities that develop science programs for K-12 classrooms. And for two decades, promising students from the Palo Alto High School District have come to work in his laboratory.

Dr. Title has been with the company since 1971. He is currently the Principal Investigator responsible for the Atmospheric Imaging Assembly on SDO, which was launched on Feb. 11, 2010, and is a Co-Investigator for another instrument on SDO, the Helioseismic Magnetic Imager. He was also the Principal Investigator for NASA's solar telescope on the Transition Region and Coronal Explorer (TRACE) mission, launched in 1998, and the Focal-Plane-Package on the JAXA/ISAS Hinode mission launched in 2006. Additionally, Title 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), launched in 1995. All of these instruments were built under Alan Title's direction at the ATC.

Dr. Title is also the Principal Investigator on a new NASA solar mission under development called the Interface Region Imaging Spectrograph (IRIS), which will launch in 2012. Both the instrument and spacecraft will be built at the ATC.

Dr. Title's research has centered on solar magnetic and velocity fields, on optical interferometers, in particular ultra narrow optical filters, on high-resolution observations using active and adaptive optical systems, and on data analysis systems for image analysis. Additionally, he has led the development of ground- and space-based instruments for solar physics research.

Dr. Title was born in Los Angeles and went to local schools and attended UCLA as an undergraduate. After graduating with a degree in mathematics he attended Columbia University in New York City for a year, then transferred to the California Institute of Technology and graduated in 1966 with a PhD in physics. Upon graduation he was a National Research Fellow at the Smithsonian Astrophysical Observatory in Cambridge, Ma. After a year he became a Research Fellow at Harvard University where he was responsible for the development of the optical solar telescopes on Skylab. At Harvard Dr. Title met his wife to be, Dr. Ruth Peterson.

Dr. Title joined Lockheed in 1971 to take over the direction of its Solar Observatory. Except for six months in 1989 where he was a visiting Professor at the Max Planck Institute for Astrophysics in Garching, Germany and six months in 1993 where he was a visiting Professor at Tokyo University, Japan, he has remained at Lockheed Martin as leader of the solar group. In 1994, Professor Phillip Scherer of Stanford and Dr. Title formed the Stanford-

Lockheed Institute for Space Research.

The ATC has a 47-year-long heritage of spaceborne solar instruments including the Soft X-ray Telescope on the Japanese Yohkoh satellite, the Michelson Doppler Imager on the ESA/NASA Solar and Heliospheric Observatory, the solar telescope on NASA's Transition Region and Coronal Explorer, the Solar X-ray Imager on the GOES-N and O environmental satellites, the Focal Plane Package on Hinode and an Extreme Ultraviolet Imager on each of the two spacecraft in NASA's Solar Terrestrial Relations Observatory. The laboratory also conducts basic research into understanding and predicting space weather and the behavior of the Sun including its impacts on Earth and climate.

The ATC is the research and development organization of Lockheed Martin Space Systems Company (LMSSC). LMSSC, a major operating unit of Lockheed Martin Corporation, designs and develops, tests, manufactures and operates a full spectrum of advanced-technology systems for national security and military, civil government and commercial customers. Chief products include human space flight systems; a full range of remote sensing, navigation, meteorological and communications satellites and instruments; space observatories and interplanetary spacecraft; laser radar; ballistic missiles; missile defense systems; and nanotechnology research and development.

"Lockheed Martin is dedicated to building excitement for science, engineering, and math education through the excellent National Engineers Week 'Discover E' (for engineering) program as well as many other outreach efforts," said John Kowalchik, vice president and chief engineer at LMSSC. "For over two decades many of our finest engineers have been affiliated with the Silicon Valley Engineering Council in support of their educational goals. Each year, Lockheed Martin engineers visit about 100 classrooms to teach and mentor students, as well as to share their enthusiasm for math, science and engineering, and the exciting careers that become a reality from working hard in school."

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation reported 2009 sales of $45.2 billion.

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