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UNH Sensor Included in Planned NASA Mission To Study Solar Eruptions

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EDITORS, NEWS DIRECTORS: For additional information about the STEREO mission and its payload, go to:

<http://STProbes.gsfc.nasa.gov/stereo.htm> and
<http://sd-www.jhuapl.edu/STEREO/index.html>

DURHAM, N.H. -- The National Aeronautics and Space Administration announced this week a University of New Hampshire experiment will be aboard a planned NASA mission to study solar eruptions.

The Solar TERrestrial Relations Observatory (STEREO) mission, scheduled for launch in 2004, is a multilateral international collaboration involving participants from France, Germany, the United States and United Kingdom.

STEREO will, for the first time, unveil the Sun in three dimensions. Its objective is to address the origin, evolution and interplanetary consequences of one the most massive disturbances in our solar system called the Coronal Mass Ejection (CME). This will be achieved by launching two identically instrumented spacecraft, both in orbit around the Sun, but one flying well ahead of the Earth and one behind.

Among the four sensors on board will be UNH's PLASMA and SupraThermal Ion and Composition (PLASTIC) experiment, which will provide plasma characteristics of protons, alpha particles and heavy ions. This experiment will provide key diagnostic measurements of the form of mass and charge state composition of heavy ions and characterize the CME.

PLASTIC is a collaboration of UNH, the University of Bern in Switzerland, and Germany's Max Planck Institute for Extraterrestrial Physics, under the leadership of UNH. Antoinette Galvin, UNH research associate professor, will lead this investigation.

Says Galvin: "The success of this proposal is the direct result of the strong leadership and support given by our [Institute for the Study of Earth, Oceans and Space](#) (EOS) and the Space Science Center, the highly

developed infrastructure at EOS that is available for hardware projects of this magnitude, and the expertise of its engineering and technical staff."

Berrien Moore III, director of EOS, notes, "This very significant NASA award to Prof. Toni Galvin and her EOS colleagues is a reflection of not only their important scientific ideas and abilities, but also of the proud and continuing heritage of space science research at the University of New Hampshire."

The other institutions with STEREO experiments include the University of California at Berkeley, the U.S. Naval Research Laboratory and the French Centre National de la Recherche Scientifique Observatory of Paris.

The two STEREO spacecraft will be built by Johns Hopkins University's Applied Physics Laboratory. STEREO is a \$150-million development mission -- \$64 million for instruments and \$86 million for the two spacecraft -- plus \$45 million for mission operations and data analysis cost. Development is scheduled to begin January 2001.

"Our primary objective is to study the stream of particles from the Sun called the solar wind," Galvin explains. "We are especially interested in looking at solar wind explosively released from the Sun as Coronal Mass Ejections (CMEs). These eruptions are known to be a primary cause of space weather on Earth, potentially causing disruptions in communications, power lines, satellites, and other technology. In addition, we will be looking at other particles in space, such as material that comes from outside the solar system -- interstellar particles called pickup ions."

Galvin's team will be building two identical PLASTIC instruments, one for each STEREO spacecraft. The projected budget from spring 2000 until just after launch in mid-2004 is about \$4.7 million.

The key personnel at UNH in addition to Galvin are lead co-investigator Eberhard Moebius; co-investigators Lynn Kistler, Mark Popecki, and Jack Quinn; and associate scientists Martin Lee and Charles Farrugia. Eleanor Abrams, of the UNH Department of Education, is an education and public outreach co-investigator.

This is Galvin's first "hardware" project at UNH. She came to the university two years ago from the University of Maryland, where she was involved with instruments that have flown on NASA's SOHO, WIND, Ulysses, ISEE-1, ISEE-3, and Geotail spacecraft missions.

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