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UNH Engineers Awarded Patent for Use of New Device Now Orbiting Between Sun and Earth

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DURHAM, N.H. -- A new invention enabling the passage of electrical signals across a vacuum chamber, developed by the University of New Hampshire, is currently orbiting between the sun and the Earth as an integral part of an instrument on NASA's Advanced Composition Explorer (ACE) satellite.

A recent United States patent award gives the inventors exclusive use of the "Surface Trace Electrical Feedthru" for experiments in space.

The feedthru was designed at UNH's Institute for the Study of Earth, Oceans, and Space, with assistance from Ceramic To-Metal Seals, Inc., during the development of the Solar Energetic Particle Ionic Charge Analyzer (SEPICA). SEPICA is an instrument on ACE determining the magnetic charges of solar and interplanetary energetic particles, helping to meet the satellite's larger mission to observe energetic particles within the solar system.

Typically, space instruments like SEPICA are encircled in a large pressurized chamber that contains gas. This gas acts to clean wires of previous electrical charges so the wires can be used to pick up the charges of the space particles being studied.

SEPICA, however, is such a large instrument that space requirements on the satellite couldn't be met with the addition of an outside chamber. This new invention made the chamber smaller and brought it inside the instrument.
Mark Granoff and Philip Demaine of UNH are the inventors of the device, along with David Broderick and Stephen Ingemi of Ceramic To-Metal Seals, Inc. This partnership, initiated over the development of the feedthru, is likely to produce other new useful devices, as the inventors continue to work together on developing new technology for the Plasma and Supra Thermal Ion Composition Instrument (PLASTIC). PLASTIC will measure the speed and composition of solar wind on board the STEREO satellite after launch into space in 2005.

For questions about the Surface Trace Electrical Feedthru, contact Granoff at 603-862-4958 or Demaine at 603-862-2824.

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