

NASA selects SwRI mass spectrometer for technology development funding

May 17 2011

NASA has selected Southwest Research Institute's MAss Spectrometer for Planetary EXploration (MASPEX) for technology development funding. Originally offered as part of the Primitive Material Explorer (PriME) mission proposal, the mass spectrometer was selected to further advance NASA's capability for evaluating the chemical composition of comets.

MASPEX is a highly sensitive ion and neutral [mass spectrometer](#) based on novel detection technologies under development by SwRI. Although similar to a spectrometer on the ESA Rosetta mission currently on course to reach comet 67P/Churyumov-Gerasimenko in 2014, MASPEX extends its resolution and sensitivity by one to two orders of magnitude. The spectrometer is designed to measure precisely the composition of volatile gases and plasmas found in planetary atmospheres as well as comets. Identification of isotopes in these extremely [low-density](#) populations is a particularly challenging target and an area where MASPEX is expected to excel. In addition to comets, the SwRI team is exploring a number of Earth-based spin-off applications of this [novel technology](#).

Institute Scientist Dr. Hunter Waite and Program Director Dr. David Young, both of the SwRI Space Science and Engineering Division, serve as MASPEX co-principal investigators.

"With further development, MASPEX will have by far the highest sensitivity for identifying, measuring and sampling gases and plasmas of

any mass spectrometer ever flown in space," says Waite.

"Measuring [isotopic composition](#) will yield for the first time quantitative clues to the origin of comets and other bodies in the solar system, and could provide valuable insights into the origin of life," Young adds.

To be considered for space flight, the SwRI team must demonstrate continued advancement of the technology in preparation for a future mission proposal. The spectrometer is one of three technology developments selected by NASA for further development.

NASA's Science Mission Directorate oversees the technology development program.

Provided by Southwest Research Institute

Citation: NASA selects SwRI mass spectrometer for technology development funding (2011, May 17) retrieved 25 April 2024 from <https://phys.org/news/2011-05-nasa-swri-mass-spectrometer-technology.html>

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