

# ASU Scientists Part of 'Next Step' in Mars Exploration

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Though two rovers are still running on Mars, NASA is already planning a return and once again a number of Arizona State University scientists are lined up to play key roles.

The mission is called the Mars Science Laboratory (MSL), and is scheduled for launch in 2009. It will have even greater capabilities than the extremely successful [Mars](#) Exploration Rovers, which continue to operate nearly a year after their arrival.

NASA announced on December 14 that eight instrument proposals and “associated science investigations” had been selected for the MSL rover. Four of the instruments have ASU faculty on their science teams.

Laurie Leshin, Dee and John Whiteman Dean's Distinguished Professor and director of ASU's Center for Meteorite Studies, was selected to be on two of the science teams -- the Alpha-Particle-X-ray-Spectrometer (APXS), provided by the Canadian Space Agency and the Sample Analysis at Mars (SAM), an integrated suite consisting of a gas chromatograph mass spectrometer, and a tunable laser spectrometer, built by NASA's Goddard Space Flight Center. Leshin is a sub-team leader on the latter, in charge of light element chemistry.

Michelle Minitti, a faculty associate at the Center for Meteorite Studies, is on the science team for the Mars Handlens Imager (MAHLI) a powerful microscopic imager built by Malin Space Science Systems, and directed by ASU alumnus Kenneth Edgett. Jack Farmer, Director of

ASU's Astrobiology Program and Professor of Geological Sciences is a member of the science team for CheMin, which is described as "an X-ray Diffraction/X-ray Fluorescence instrument for definitive mineralogical analysis," being built by NASA's Ames Research Center. This important instrument "will identify and quantify all minerals in complex natural samples such as basalts, evaporites and soils, one of the principle objectives of Mars Science Laboratory."

The Mars Science Laboratory (MSL) mission is seen by the community of scientists involved in the exploration of Mars as the "next step," following the stunning successes and dramatic discoveries that have already been made by the still-ongoing Mars Exploration Rover (MER) missions. The instruments in MSL were chosen to help answer even larger questions that follow from MER's discovery of clear evidence for the existence of past liquid water on the martian surface.

"We will have exquisite sensitivity, with the most complex chemical laboratory ever sent to Mars," said Leshin. "This mission is the clear next step toward answering the captivating scientific questions: 'Was there ever life on Mars? Is there life on Mars today?'"

The guiding principle for the past missions to Mars has been the now familiar NASA motto, "follow the water," since the compound in its liquid form is seen an environmental requirement for the development of life. But Leshin suggests that the phrase may be in for an update, since the search now is for the building blocks of life itself, and there is one element common to and ubiquitous in all living things: carbon.

"The Mars Science Laboratory is all about following the carbon," she said. "For the first time, we'll be able to roam the surface of Mars in search of carbon in rocks."

The discoveries, if and when they come, may thrill the world of science,

but that is all still many years away. ASU's researchers are primarily concerned now with the completion of the mission's design and with being grateful for the fact that ASU is once again going to be heavily involved.

“It is so exciting to keep up the high level of ASU involvement in Mars exploration, said Leshin. We have ASU representation on almost half of the instruments on this mission. It's a great way to follow up ASU's unmatched participation in the Mars Exploration Rover mission.”

Source: Arizona State University

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