Meteorites rich with information, expert says

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A Purdue University professor on Wednesday (March 28) said at national convention that meteorites hold many clues into the creation and evolution of the solar system.
Michael Lipschutz, a professor of inorganic chemistry and cosmochemistry, gave a presentation titled "Lessons from Meteorites" at the American Chemical Society national meeting in Chicago. His presentation featured information from a chapter he authored in the new *Encyclopedia of the Solar System* (Academic Press).

"Meteorites are the poor man's space probe," Lipschutz said. "They offer otherwise unobtainable information and contain the oldest known materials. Some contain materials created before the solar system was formed and illustrate processes that occurred 4.56 billion years ago. No other accessible material provides such information, and they are delivered right to us."

Meteorites are metallic or stony objects that fall to the Earth from outer space. They are fragments of the minor planets (asteroids) or larger masses in the solar system such as Mars and our moon, he said.

More than 31,000 meteorites have been found on Earth, with weights ranging from less than one gram to 60 metric tons.

"The amount of information available through meteorites is astounding," he said. "If one picture is worth 1,000 words, then one meteorite sample is worth 1,000 pictures."

Meteorites record and date solar and galactic events and reveal details about the composition of the Earth and other planets, asteroids and the sun. Meteorites also are critical to supplementing and interpreting data gathered from remote sensing technology, he said.

"Meteorites are pristine samples of solar system matter, and their chemical and physical properties give us 'ground truths' about their planet of origin as if we had taken measurements on the planet's surface, " Lipschutz said. "These 'ground truths' are used to calibrate our remote sensing instruments and as correlative data."

Lipschutz's presentation at the conference was part of the session titled "Chemical Evolution: Chemical Change Across Space and Time."

Source: Purdue University