

Division for Planetary Sciences, American Astronomical Society
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Prof. Sarah T. Stewart-Mukhopadhyay is the recipient of the 2009 Urey Prize from Division for Planetary Sciences (DPS).

The Division for Planetary Sciences of the American Astronomical Society has chosen Sarah T. Stewart-Mukhopadhyay for the 2009 Harold C. Urey Prize. The prize was established by the DPS to recognize and encourage outstanding achievements in planetary science by a young scientist.

Currently the John L. Loeb Associate Professor of the Natural Sciences at Harvard University, Sarah initially showed her abilities as a graduate student at the California Institute of Technology while trying to explain the relationship between the unusual ejecta features around impact craters on Mars and ground ice. Her laboratory experiments were the first to study shock propagation in ice under conditions found on planets and moons in our solar system. She has continued her work at Harvard, where she was also an undergraduate student, building a shock wave laboratory and making contributions to our understanding of craters, planetary accretion and evolution of planetary surfaces.

Sarah's findings show that ice, even when initially at very low temperatures, melts easily during an impact event by very quickly changing into different dense crystal structures.. She demonstrated that shock-induced melting occurs at much lower pressures than previous theoretical estimates, thereby providing strong evidence for sub-surface ice playing the dominant role in forming layered ejecta morphologies on Mars. Similarly, her collaborative work on vapor and fluidized flow implicates liquid water as the most prevalent erosive fluid currently active on Mars.

Besides being a very productive scientist, Prof. Stewart-Mukhopadhyay is an exceptional role model for younger scientists. She is skilled in communicating her research to her colleagues and peers. She is an effective and a generous mentor to her students while raising a family and doing community service. She has helped build a meteorite exhibit for the Harvard Museum of Natural History and also produced an educational video for school students.

The Prize will be presented on Tuesday, 6th October during the

41st Annual meeting of the Division for Planetary Sciences in
Fajardo, Puerto Rico.