

Stephen R. Sutton

“Extraterrestrial Materials; The Role of Synchrotron Radiation Analyses in the Study of Our Solar System”

Stephen R. Sutton is a senior scientist at the University of Chicago. He received B.S. (Physics) and Ph.D. (Earth and Planetary Sciences) degrees from Washington University (St. Louis), where he was a member of the McDonnell Center for the Space Sciences. He has been involved in synchrotron radiation research for 20 years, currently as Co-Project Leader for the GeoSoilEnviroCARS beamlines (sector 13) at the Advanced Photon Source, and Spokesperson for beamline X26A at the National Synchrotron Light Source (Brookhaven National Laboratory). His research is focused on x-ray fluorescence microprobe development and applications in the earth, planetary, and environmental sciences, including studies of extraterrestrial materials. He is currently a member of the Stardust Preliminary Examination Team.

Sample-return missions and natural collection processes have provided us with a surprisingly extensive collection of matter from Solar System bodies other than the Earth. These collections include samples from the Moon, Mars, asteroids, interplanetary dust, and, recently, from the Sun (solar wind) and a comet. This presentation will describe some of these materials, how they were collected and what we have learned from them. Synchrotron radiation analyses of these materials are playing an increasingly valuable role in unraveling the histories and properties of the parent Solar System bodies.



The Stardust spacecraft reenters Earth's atmosphere.
(Photo credit: The Stardust Science Team)

Wednesday, April 5, 2006

3:00 p.m.

Bldg. 402, APS Auditorium • Argonne National Laboratory

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