

UK Science Enabled from Small Body Sample Return Missions

Hybrid RAS Specialist Discussion Meeting

12th December 2025

Morning Session

10:30-10:35: *Welcome*

10:35-10:50: *Sara Russell (Invited)*

10:50-11:05: *Sarah Crowther* Ultrasensitive Xenon Isotopic Analysis of Returned Samples: Examples from Bennu and Ryugu

11:05-11:20: *Eloïse Brown* - Particle Size Effects on Thermal Infrared Emission Spectra of Lizardite

11:20-11:35: *Mazin Nasralla* Solution structure of Titan-relevant aqueous ammonia by neutron diffraction

11:35-11:50: *Helena Bates* Investing Mg-phosphates in asteroid Bennu using the I18 beamline at Diamond Light Source

11:50-13:30: Lunch

Afternoon Session

13:30-13:45: *Chrysa Avdellidou (Invited)*

13:45-14:00: *Roger Stabbins* Toward Multiview-Multispectral Sensing from the Martian Moons eXploration Spacecraft: Imaging Ryugu & Bennu Samples with the Laboratory OROCHI Simulator

14:00-14:15: *Helen Grant* Sample return and analysis of Enceladus and Io by their plumes

14:15-14:30 Coffee break

14:30-14:45: *Ben Fernando* Hypersonic tracking of sample return capsules - lessons for meteors, space debris (and alien spacecraft !?)

14:45-15:05: *Mark Burchell* Stardust: The first sample return mission to a small body

15:05-15:20: *Ben Rider-Stokes* Diverse Protoplanet Formation in the Outer Solar System When and Where?

15:20-15:30: *Discussion*

To register for the meeting please visit [here](#).

Registration is free for RAS fellows and £15 (£5 for online) for non-fellows.

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Organised by: Helena Bates (NHM), Emelia Branagan-Harris (NHM and Oxford University), Katherine Shirley (Oxford University)