

Coordinated analysis of primitive cosmomaterials

LYDIE BONAL¹, PIERRE BECK², OLIVIER POCH², ERIC
QUIRICO¹ AND BERNARD SCHMITT²

¹Institut de Planétologie et d'Astrophysique de Grenoble

²Institut de Planétologie et d'Astrophysique de Grenoble

Presenting Author: lydie.bonal@univ-grenoble-alpes.fr

Scientists working on extraterrestrial samples are currently living a particularly exciting time with the recent successful asteroidal sample return by the Hayabusa-2 mission (JAXA), and with the future sample returns by OSIRIS-Rex (NASA), Mars Sample Return (NASA), MMX (JAXA), and Chang'e 6 (China), at least. These extraterrestrial samples collected *in situ* are particularly precious, and as any cosmomaterials (meteorites, micrometeorites, IDPs) that are collected on Earth, they are complex. Hence the need to coordinate multiple analytical techniques to reveal the most precise picture about their compositions, to be interpreted in terms of origin and evolution of their pristine components.

In this talk, I will emphasize the coordinated work we are developing at IPAG (Grenoble, France) with a specific focus on organics and water through hydrated minerals. In particular, I will underline our ability to combine diverse spectroscopic (e.g., Raman, IR, reflectance) and spectrometric methods, allowing us to characterize samples from the nanometer to the millimeter scale. These abilities are acquired and developed on a large range of primitive cosmomaterials collected on Earth, but also on synthesized model samples, with the objective to apply them on Hayabusa-2 and OSIRIS-REx samples, at least. I will also show how we use these laboratory data (available through the GhoSST/SSHade spectral database: www.sshade.eu) to further increase our knowledge of small bodies of the Solar System.