

The ETNA consortium: application of interdisciplinary analytical techniques to the study of extraterrestrial materials

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The first two sample return missions the NASA *Stardust* and the ISAS *Hayabusa* missions, have captured samples of planetary material that are going to be analysed in terrestrial laboratories. Other space missions are planned in the next future to return samples of Mars or asteroids, such as the Russian Phobos/Soil. In this perspective, we expect that a limited amount of material will be available for analysis and almost every research planetary Institute would like to participate in this exciting study. The ETNA (Extra-Terrestrial Nanomaterials Analysis) consortium was formed in order to combine high level of expertises from interdisciplinary fields, such as, planetary science, materials science, biology and technologies for nanoscale material analysis.

The ETNA is formed by four research groups that have complementary skills and instrumentation suites. The involved Entities are two research Institutes, such as the INAF-IFSI and the CNR-ISM, and two Universities, the Earth Science Department at “La Sapienza” University and the Physics Department at “Roma Tre” University.

One of the main ETNA’s goal is the development, implementation and application of new analytical technologies for the analysis of extraterrestrial material in laboratory, focussing onto material returned from space missions. Scientists involved in the project will take advantage of combine well-known analysis techniques available to the Consortium laboratories (X-ray diffraction, Scanning Electron Microscopy, micro-IR and VIS-NIR spectroscopy) with the state of the art of the Scanning Probe Microscopy. As examples of our present activity we present here some results obtained by means of Atomic Force Microscopy (AFM), micro-IR and VIS-NIR for the study of ordinary chondrites and SNC meteorites.