

INAF/Osservatorio Astrofisico di Catania

Contact person : G. Leto

OACT is one of the Research Structures of the Istituto Nazionale di Astrofisica (INAF). Research interests at OACT include: multi-wavelength researches on the Sun, Solar System, Stars, Interstellar Medium, External Galaxies, Cosmology; Astrobiology and search for extraterrestrial planets; Laboratory on energetic processing of solid materials; technological activities on detectors and focal-plane instruments for telescopes; high performance calculations (including GRID-computing). In particular the group LASP (Laboratory for Experimental Astrophysics) has been mainly devoted to experimental studies of the chemical and physical modifications induced by fast ions on targets of astrophysical relevance (frozen gases, silicates, carbonaceous materials). Among the induced effects particular relevance is given to the chemical modifications that, when targets contain carbon atoms, drive the formation of organic refractory residues and sub-oxides. The relevance those results have to the physics of solid surfaces in the Solar System has been outlined in several invited reviews. The laboratory is equipped with ion implanter (Danfysik 1080 200kV), OPTHOS VUV Lamp (10.2 eV), High Vacuum (better than 10^{-7} mbar, or $7.5 \cdot 10^{-8}$ torr) scattering chamber, Macro-micro FTIR Spectrophotometers (0.5-200 micrometer), UV-VIS-NIR Spectrophotometer (175-3200 nm), Confocal Raman spectrograph (macro and micro).

Role in VAMDC project : of database structure for ion– and UV–irradiated ices, related XML schemes, connected specifications (in WP7); creation of automated tools to facilitate the ingestion of current and future data of our database of laboratory measurements in VAMDC, enabling (almost) automatic update (in WP8); actual deployment of our database of laboratory measurements as a VAMDC node (in WP4); maintenance and monitoring of our VAMDC node (in WP5).

Key persons :

G. Leto, staff astronomer

Expertise : astronomical and laboratory spectroscopy, supercomputing, LASP database, outreach

Role in VAMDC project : SA1, SA2, JRA2, JRA3

M. E. Palumbo, staff astronomer

Expertise : infrared spectroscopy, ion irradiation, UV photolysis, molecules in dense interstellar molecular clouds.

Role in VAMDC project : SA1, SA2, JRA2, JRA3

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