

Catania Student's week 2009
2-5 Marzo 2009

Scheda Partecipante

Nome e Cognome: Pierre Vernazza

Laurea conseguita il:

Titolo Tesi:

Relatori:

Titolo di Dottore di Ricerca conseguito nell'anno: 2006

Titolo Tesi: Study of the physical properties of asteroids

Tutors: Marcello Fulchignoni, Prof at University Paris 7

Esperienze ulteriori:

Posizione attuale: Post-doc at ESTEC-ESA

Breve descrizione attività di ricerca (max 20 righe): Asteroid and Mercury observations.
Understanding asteroidal space weathering and the source regions of meteorites.

Titolo ed Abstract del contributo alla Student's week 2009 (max 10 righe):

I will present new irradiation experiments performed on the enstatite chondrite Eagle (EL6) and the mesosiderite Vaca Muerta. These experiments were performed with the aims of (a) quantifying the spectral effect of the solar wind on their parent asteroid surfaces and (b) identifying their parent bodies within the asteroid belt. For Vaca Muerta we observe a reddening and darkening of the reflectance spectrum with progressive irradiation, consistent with what is observed in the cases of silicates and silicate-rich meteorites such as OCs and HEDs. For Eagle we observe little spectral variation, and therefore we do not expect to observe a significant spectral difference between EC meteorites and their parent bodies. We evaluated possible parent bodies for both meteorites by comparing their VNIR spectra (before and after irradiation) with those of ~400 main-belt asteroids. We found that 21 Lutetia (Rosetta's forthcoming fly-by target) and 97 Klotho (both Xc types in the new DeMeo taxonomy) have physical properties compatible with those of enstatite chondrite meteorites while 201 Penelope, 250 Bettina and 337 Devosa (all three are Xk types in the DeMeo taxonomy) are compatible with the properties of mesosiderites.

I will also briefly present some of my results that recently appeared in *Nature* (Vernazza et al. 2008).

Elenco Pubblicazioni:

