



Università Tor Vergata, Roma  
Ingegneria Civile e Ingegneria Informatica  
GeoInformation PhD Curriculum

**7<sup>th</sup> 2013 GeoInformation Seminar**

DISP meeting room, Ingegneria dell'Informazione, 1 Via del Politecnico  
11 April 2013, starting at 15:00

**Fabiano Costantini**

**Advanced SAR interferometric techniques potential of the  
Sentinel-1 future generation C-band mission**

The research is focused on the prediction of the advanced SAR interferometry techniques potentials of the Sentinel-1 C-band data.

Two case studies have been considered: tectonic subsidence in Thessaloniki (Greece) and characterization of the Etna (Italy) lava flows using Permanent Scatterers (PS) and Small Baselines interferometry (SBAS).

The simulation of the future Sentinel-1 data has been carried out together with the analysis of some simulated products. In particular, the results of the simulated PS calibration module (which will be systematically operative after the launch of the satellite) have been analyzed. Use of the output of the module is foreseen for further analysis.

**Fabiano Costantini** received his M.Sc. (Laurea Specialistica) degree from Tor Vergata University in 2009. He is currently enrolled in the GeoInformation Phd program at the same University.

He collaborates with ESA/ESRIN on Earth observation educational activities.

**Giosuè Andrey Giardino**

**Observation of an urban area by space borne SAR interferometry:  
modeling and analyzing the interferometric image of man-made structures**

Synthetic Aperture Radar Interferometry (InSAR) is an established technique for the retrieval of digital surface models. Last generation metric-resolution space borne SAR systems has promoted interest into the investigation of InSAR potential for 3-D imaging and geolocalization of man-made structures, aimed at the generation of synoptic urban maps.

The presentation addresses the problems encountered in the application of the InSAR technique to urban areas due to layover, multiple scattering and the large backscattering dynamics characterizing man-made structures.

A model for the interferometric image of buildings will be presented to analyze the InSAR potential for building height estimation.

**Giosuè Andrey Giardino** graduated in 2011 with a Laurea Magistrale degree in Telecommunications Engineering at Rome Tor Vergata University, where he is currently a second year student of the Geoinformation doctoral school.

His PhD research project addresses the observation of urban areas by interferometric and tomographic SAR techniques.

*You are cordially invited to attend.*