



Università Tor Vergata, Roma  
Dipartimento di Informatica, Sistemi e Produzione

GeoInformation Doctorate



Earth Observation Laboratory

### GeoInformation Seminar

DISP meeting room, Ingegneria dell'Informazione ground floor, Via del Politecnico, 1  
24 May 2011, starting at 15:00

**Gaia Vaglio Laurin**

## Forest biomass analysis by airborne LiDAR data in Sagehen Experimental Station, Sierra Nevada, California

### ABSTRACT

LiDAR is widely recognized as the state-of-the-art remote sensing technology for mapping above ground biomass. Field plots and airborne LiDAR dataset from a high biomass conifer and mixed forest in Sierra Nevada were used to explore LiDAR-based biomass retrieval methods. Selected LiDAR metrics from point cloud were extracted and used for evaluating and comparing different models: multiplicative regression, neural network, mixed-effect model. The roles of allometric relationships and field geolocation accuracy were also tested. The inclusion of ancillary information, such as vegetation types/land cover derived from orthophotos, improved the best performing model thus indicating a feasible way to further enhance vegetation analysis by LiDAR.

**Gaia Vaglio Laurin** is in her second year as a PhD candidate of the GeoInformation Doctorate at the Tor Vergata University, Rome, Italy. Her main interest is in remote sensing of natural resources, with focus on vegetation, forestry and biodiversity conservation issues.

She received the Laurea degree in Biological Sciences and a Postgraduate Degree in Demo-Ethno-Anthropological Sciences in 1995 and 1996, respectively, from La Sapienza University, Rome, Italy; a Master in Geomatics and Natural Resources Evaluation in 2004 from the Istituto Agronomico per l'Oltremare of the Italian Ministry of Foreign Affairs in Florence, Italy; and a Master of Science in Biodiversity Conservation from the University of London, UK, in 2005.

From 1997 to 2008 she worked as a consultant for the international development co-operation sector, non-governmental organizations, UN agencies, private companies and research institutions, supporting the use of geographical information systems and remote sensing for conservation and monitoring activities. She recently spent a period at the University of Hawaii at Manoa, Geography Department, to specialize in LiDAR data analysis.

*You are cordially invited to attend.*

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