



Università Tor Vergata, Roma  
Ingegneria Civile e Ingegneria Informatica

GeoInformation PhD Curriculum

GeoInformation Seminar

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

Stefano Caizzone

Smart in-situ sensing antennas for aerospace applications

Grids of *ad-hoc* RFID tags are being studied to monitor the “health” state of structures on which the antennas are attached.

An analysis of the requirements as well as possible ways to improve the performance of such sensors by fully exploiting the electromagnetic coupling phenomena will be discussed.

**Stefano Caizzone** received the M.Sc. degree in Telecommunications Engineering from the Tor Vergata University, Rome, Italy, in 2009, and is currently working toward the Ph.D. degree at the same university.

He is now with the Antenna group of the Institute of Communications and Navigation of the German Aerospace Center (DLR), Wessling, Germany, where he is responsible for the development of innovative miniaturized antennas for robust navigation receivers. His main research interests concern small antennas for RFIDs and navigation, antenna arrays and grids with enhanced sensing capabilities.

Rossella Lodato

Feasibility of Passive Sensing of the Human Body by UHF RFID Tags

The perspectives and limitations of passive UHF RFID in monitoring the human body, considering current technology and its future evolution, will be presented.

The system performance is estimated in terms of achievable read ranges, antenna size, required powers and sensitivity through a parametric study involving anatomical human model able to reproduce different physiological and pathological conditions of the human body.

**Rossella Lodato** received the Laurea degree in Electronics Engineering from the University of Palermo, Italy, and is currently a Geoinformation PhD candidate at the Tor Vergata University in Rome.

In 2007 she has been a Research Fellow with the Technical Unit of Radiation Biology and Human Health, of ENEA, where her main research activity concerned the measurement, the dosimetry of electromagnetic fields and the design of exposure systems for *in vitro* and *in vivo* experimentation.

Sabina Manzari

Wireless chemical lab-on-tag for human health and ambient air quality monitoring

The Internet of Things and the Wireless Sensor Networks hold a strategic role in the current and future technologies for the e-Health and e-Environment.

The research project pursues the development of a new RFID passive sensors system, the lab-on-tag, to be spread in the environment, placed on tagged objects or on human bodies. The achieved results, for both on-body applications and environmental sensing will be discussed.

**Sabina Manzari** obtained her M. Sc. in Medical Engineering from the Tor Vergata University in Rome in 2010, where she is currently working as a PhD candidate in Geoinformation.

Her research interests include Electromagnetism, passive RFID sensors and Wireless Health Monitoring by means of wearable radio frequency identification techniques. In 2010-2011 she was a Visiting Researcher with the RFID research group of Tampere University of Technology (Finland), where she was involved in the development of passive RFID sensors for temperature and heat monitoring.

*You are cordially invited to attend.*

<http://www.disp.uniroma2.it/geoinformation/>