



# LABORATORY of INFORMATION TECHNOLOGIES

**Thursday, 17 November 2011, 11.00**

**Room 407**

**1. Professor Vasile Buzuloiu** (Romania, Bucharest, University Politehnica Bucuresti)  
**Image analysis and processing laboratory of the University  
Politehnica Bucuresti**

A short presentation of the LAPI – the Image Analysis and Processing Laboratory of the Faculty of Electronics, Telecommunications and Information Technology from the University Politehnica Bucuresti.

**2. Dr. Alina Sultana, Associate professor at LAPI-UPB** in the domain of medical applications of image analysis and processing: diagnosis of breast cancer and osteoporosis.

**Medical applications of image analysis and processing: diagnosis  
of breast cancer and osteoporosis**

**3. Dr. George V. Popescu** (National Institute for Laser Plasma and Radiation Physics and University Politehnica Bucuresti)

**Computational and biophysical methods for comprehensive  
characterization of molecular interactions in cellular networks**

One of the main challenges in analyzing cellular interactions is the development of computational models that approximate well cellular dynamics and the perturbation effects of experimental assays. Using recent advances in large scale protein microarrays design, we develop methods for identification and analysis of plant interactome. We highlight results on plant kinome identification, functional characterization of CaM proteins and identification of new immune system components in plants. We discuss how to complement high-throughput observations with results from computational and biophysical methods in order to obtain better estimation of biomolecular model parameters. Structural analysis of interactions observed from high-throughput data can increase prediction accuracy and give insight into molecular interaction mechanisms. We are using molecular docking to analyze interaction of membrane proteins with small molecules. Based on these techniques we are currently analyzing protein interactions in order to characterize plant signaling mechanisms.