INVITATION

You are cordially invited to the public PhD defense
of

Deepti Gholap

Development and Use of Approaches for Quantitative 2-D Elemental Mapping of Biological Samples via Laser Ablation - ICP - Mass Spectrometry

Thursday, 10th May, 2012 at 15:00 h

Venue: Het Pand, Zaal Blancquaert
Onderbergen 1, 9000 Gent

Following the defense a reception will be hosted at Het Pand in the Novicengang

Abstract

Elements play an important role in living organisms, showing either physiological, toxicological or pharmacological effects. Their deficiency or excess may lead to metabolic disorders. Imbalanced distribution of specific elements in animals is an indication of an existing disorder and is often used in evaluating the cause as well as the progress of a disease. Apart from diagnosis, visualization of elemental distribution in animals is crucial for pharmacokinetic studies of drug molecules. Clinical studies of new drug molecules largely rely on imaging techniques to evaluate their penetration, distribution and efficacy in general. In plants and lower organisms, abnormal metal deposition is often related to altered ecological conditions. Elemental profiling in these (model) organisms provides information on pollution and is used for monitoring the same.

The primary objective of this work was to develop and apply analytical procedures based on the use of laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) to address specific questions related to environmental and pharmaceutical/medical studies. Multi-elemental imaging by LA-ICP-MS is an emerging microanalytical technique providing spatially (lateral and depth) resolved information with high sensitivity. The application of LA-ICP-MS in the above mentioned fields of application, can offer several advantages over the already existing methodologies. In my PhD research, I have focused on approaches to improve elemental mapping, by reducing analysis time, increasing spatial resolution and/or improving elemental quantification protocols.

Members of the Jury

Promotor
Prof. Dr. Frank Vanhaecke
Department of Analytical Chemistry, Ghent University

Co-promotor
Prof. Dr. Luc Van Hoorebeke
Department of Physics and Astronomy, Ghent University

Chairperson
Prof. Dr. Mieke Adriaens
Department of Analytical Chemistry, Ghent University

Dr. Lieve Balcaen
Department of Analytical Chemistry, Ghent University

Prof. Dr. Laszlo Vincze
Department of Analytical Chemistry, Ghent University

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