Short Bio of Pr. Silvana Andreescu

Silvana Andreescuis the Egon Matijević Chair in Chemistry and Professor of Bioanalytical Chemistry in the Department of Chemistry and Biomolecular Science at Clarkson University in Potsdam, NY. She has received a PhD in Chemistry, specializing in biosensors from the University of Perpignan, France, and University of Bucharest, Romania in 2002, and has been a member of the Clarkson faculty since 2005. Between 2003 and 2005 she was a NSF-NATO postdoctoral fellow at the State University of New York at Binghamton. Her research interests are in nanobiotechnology and sensor development focusing on investigations of basic biochemical mechanisms at bio-interfaces, functional nanostructures, biomimetic materials and development of practical devices for water, food, clinical and environmental monitoring. She is the recipient of a French Government Graduate Fellowship, a NATO-NSF Postdoctoral Fellowship, the NSF-CAREER award, the John W. Graham Faculty Research Award, the Research Excellence award, and a Member of the Million Dollars Club at Clarkson University.

Lectures Abstracts

Nanotechnology-based solutions for next generation devices: health, water, food, and environment

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Rapid progress of nanotechnology and advanced nanomaterials production offers significant opportunities for designing powerful sensing systems and devices with integrated recognition, detection and communication capabilities. These technologies are needed in a wide range of applications, especially in medical diagnostics and in the environmental and food monitoring fields. Examples include responsive materials for wearable sensing devices, flexible electronics, functional contact lenses, small sensors for monitoring brain activity, smart screens and intelligent packaging. For example, bioactive nanostructures that have the appropriate detection sensitivity and selectivity are particularly important for the development of low cost devices for home diagnosis and point of care testing. This presentation will discuss the use of

nanotechnology to construct nano-based sensing systems designed to address emerging health and environmental challenges. Examples of sensors that utilize advanced nanomaterials possessing interesting optical, catalytic and oxygen storage/release properties and application of these devices for the detection of clinically and environmentally important analytes will be presented. Recent work focusing on the development of nanoparticles based tests for point-of-care diagnosis and therapy as well as the use of implantable microbiosensors for studying biomolecular mechanisms in *in vivo* conditions and for exploring the brain neurological activity will be discussed.

Translating Research and Innovation into the Marketplace: Entrepreneurial Skills, Challenges and Opportunities

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This presentation will discuss challenges and opportunities for translating research and innovation from laboratory scale to market using examples from the biosensing field. The development and implementation of chemical and biological sensors that could respond to the today's needs for low cost, rapid detection, higher selectivity and sensitivity for the analyte of interest is an emerging area of research. These devices can be used in a variety of environments, in the clinical sector, for environmental monitoring or food quality control. However, despite extensive research in biosensors and their enormous potential compared to laboratory-based techniques, the biosensor market is relatively small and numerous problems still remain to be solved. This presentation will show that in addition to building research capabilities, training and exposure of scientists and students to entrepreneurial activities, market and customer knowledge as well as networking with industry are keys to enable rapid and successful penetration of new technology into the marketplace.