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## The 9th Workshop on (Bio)sensors and Bioanalytical Microtechniques in Environmental and Clinical Analysis

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## FOREWORD

### **The 9th Workshop on (Bio)sensors and Bioanalytical Microtechniques in Environmental and Clinical Analysis**

BBMEC 2009 was held on the University of Montreal campus on the beautiful Mont-Royal, near the city centre. This was the first time that Canada has hosted the workshop, with the eight previous workshops being held in Europe, USA and India on a nearly biannual schedule since 1994. Participants and corporate sponsors came from nearly all corners of the world, representing more than 20 countries from North America, Europe, Asia, Oceania, the Middle East and Africa. Numerous scientific advances were presented in both the environmental and clinical fields. The workshop was a success, with 136 participants and numerous volunteers, and the support of the numerous corporate sponsors and local organisations.

The workshop consisted of a daily scientific programme that ended with a social event in order to stimulate discussion among the participants. The scientific programme included two plenary lectures, 46 contributed presentations and 59 poster presentations, covering a wide range of topics. The topics were selected to highlight cutting edge research on biosensors and bioanalytical techniques, including: surface plasmon resonance (SPR) and resonators, microarrays and biochips, electrochemistry, environmental applications, microextractions and microarrays, sensors and materials, pathogen detection, immobilisation techniques, advances in biosensing, clinical applications and optical techniques. It is worth while mentioning that many scientific disciplines were represented, including chemistry, biochemistry, physics, engineering and material sciences, among others.

The scientific programme featured two high quality plenary lectures from Christof Niemeyer (University of Dortmund) and by Stephen Weber (University of Pittsburgh). Professor Niemeyer opened the workshop with an outstanding lecture on novel techniques applied to the clinical world. The second day featured the stimulating plenary lecture of Professor Weber on the importance of extraction techniques and on research aimed at improving them. The rest of the scientific programme included numerous internationally recognised senior scientists but also graduate students, post doctoral fellows and young faculty, who will be the future leaders of biosensing and bioanalytical sciences. The quality of both the oral and poster presentations was excellent, as was demonstrated by the stimulating discussions during the scientific and social events.

While it is impossible to summarise all of the scientific sessions here, it is important to point out some of the general trends emerging in the fields of biosensors and bioanalytical techniques. Sensors are getting increasingly smaller either to use smaller sample volumes or to multiplex using arrays that are capable of detecting multiple analytes, simultaneously. In particular, multiplexing is reaching particularly impressive capabilities when used with electrochemical and optical techniques. New materials for electrochemical, SPR and optical sensing techniques were also an important part of the workshop. Multiple methodologies to immobilise bioactive molecules on surfaces and sensors were shown to be important for the design of bioactive paper and improved sensing methodologies. Elegant extraction techniques have been developed for environmental sensing.

Field deployable techniques have been presented for environmental monitoring and pathogen detection. All these topics are important for the advancement of science. Furthermore, numerous applications of these techniques can be foreseen for commercial markets.

The workshop was an excellent venue for both the scientists interested in learning about biosensors/bioanalytical techniques and for the experts who want to remain up-to-date with the latest developments in the field. It also provided an excellent opportunity for graduate students and post doctoral fellows to participate and present at an international scientific event. While it is impossible to list all of the outstanding presentations in these pages, the organising committee would nonetheless like to signal out the exceptional poster presentations of the two Roland Frei awardees for 2009: John Connelly from Cornell University (USA) with a paper entitled 'Investigation of Electrochemical Microfluidic Biosensors for Ultrasensitive Detection' and David Troiani from McGill University (Canada) who presented a paper on 'Ultrasound Contrast Agents Based on Molecularly Imprinted Hydrogel Sensors'. In addition, 'Analytical Chemistry Excellence Awards' were given to eight exceptionally high-quality student presentations: Carmen Carrasquilla (McMaster University, Canada); Sonia Centi (University of Florence, Italy); Nikolas M. Eleftheriou (McMaster University, Canada); Mahmood Golmohamadi (University of Montreal, Canada); Marie-Pier Murray-Méthot (University of Montreal, Canada); Arghavan Shabani (Concordia University, Canada); Sandy Shuo Zhao (University of Montreal, Canada); and Nancy Tawil (Ecole Polytechnique de Montreal, Canada). Congratulations to them!

This special issue of the *International Journal of Environmental Analytical Chemistry* includes several research articles from presenters of the 9th BBMEC workshop. These papers will provide a more in-depth look at some of the exciting work presented in Montreal. We hope you will enjoy this special issue and we invite you to attend the next workshop to be held in Eisenach, Germany in 2011.

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