
Canadian Society for Chemistry
Analytical Chemistry Division Newsletter

Spring 2008

2008 ANALYTICAL AWARDS

2008 Maxxam Award

Sponsored by Maxxam Analytics Inc.

Dr. Charles Lucy
University of Alberta

This award is presented to a scientist residing in Canada who has made a distinguished contribution in the field of Analytical Chemistry while working in Canada.

2008 W.A.E. McBryde Medal

Dr. David Chen
University of British Columbia

This medal is to be presented as a mark of distinction and recognition for a significant achievement in pure or applied analytical chemistry by a young scientist working in Canada.

2008 Fred Beamish Award

Sponsored by Eli Lilly Canada Inc.

Dr. Aaron Wheeler
University of Toronto

The Fred Beamish Award is to recognize individuals who demonstrate innovation in research in the field of Analytical Chemistry, where the research is anticipated to have significant potential for practical applications.

2008 Graduate Student Award

In Honor of Douglas E. Ryan

Andrei Drabovich
York University

This award is presented to an outstanding senior graduate student. The selection of the recipient is made on the basis of research contribution and the excellence of academic record.

Message From The Chair

As I begin my term as Chair of the Analytical Chemistry Division, the largest division in the CSC, I am both honored to do so, and at the same time, I am humbled by the excellence and breadth of research in analytical chemistry that I see being carried out across Canada today. The analytical program at the upcoming CSC conference is evidence of this. The number and breadth of sessions continues to grow year after year. My own definition of analytical chemistry that I give to students in my second year class was scribbled out more than 10 years ago. It follows:

“Analytical chemistry is the field of chemistry dealing with the theory, development and practice of methods used to probe the composition of all phases of matter”

As an analytical/atmospheric chemist, I try to develop techniques for probing the composition of gas and particle phases in the atmosphere. And while the analytical development is rewarding and demanding in itself, we take the measurements one step further. With suitable analysis of our measurements, we hopefully further our understanding of the sources, sinks and transformations of chemicals in the atmosphere. The explosion of research in bio-analytical chemistry is another example where the research does not stop after the method is developed and practiced. The research of bio-analytical chemists is furthering our understanding of the biological organism at the molecular level.

Given this, I will now modify my definition ever so slightly...

“Analytical chemistry is the field of chemistry dealing with the theory, development and practice of methods used to probe *and understand* the composition of all phases of matter”

I believe this more accurately reflects the research in analytical chemistry I see going on today.

Robert McLaren
York University

91st CANADIAN CHEMISTRY CONFERENCE AND EXHIBITION



Shaw Conference Centre,
Edmonton, Alberta, Canada
May 24 - 28, 2008



The Analytical Chemistry program is being organized by Mark McDermott (Alberta) and can be viewed on the Web at www.csc2008.ca

Topics for the symposia and the session organizers are:

Analytical and Environmental Toxicology (Joint with EN)
Organizers: Chris Le and Xing-Fang Li, University of Alberta

Analytical Separations
Organizer: Charles Lucy, University of Alberta

Biological Mass Spectrometry (Joint with PT)
Organizers: John Klassen, Mark McDermott and Liang Li, University of Alberta

Nanoscale Materials and Devices for Chemical and Biological Sensing (Joint with MT)
Organizers: Stephane Evoy, University of Alberta and Wayne Hiebert, National Institute for Nanotechnology

Nanoscale Phenomena in Electrochemistry
Organizer: Rick McCreery, University of Alberta

New Generation of Analytical Chemistry
Organizer: Jed Harrison, University of Alberta

Single Molecule Measurement in Biological Chemistry (Joint with BM and PT)
Organizers: Nancy Forde, Simon Fraser University and Hongbin Li, University of British Columbia

Spectroscopy at Surfaces and Interfaces (Joint with PT)
Organizers: Alex Brolo and Dennis Hore, University of Victoria

General
Organizer: Mark McDermott, University of Alberta

The Annual ACD Dinner will be on held Tuesday night at the CSC Conference. Everyone is welcome. Date: Tuesday May 27, 2008; ~ 7:15 pm (after Analytical poster session)
Location: Four Rooms Restaurant & Lounge, Suite 137, Edmonton City Centre East
Cost - \$35. Students will be subsidized at ½ price by the ACD. They are encouraged to attend.

OTHER NEWS

ICASS 2008

The 54th International Conference on Analytical Sciences and Spectroscopy (ICASS 2008) is sponsored by The Spectroscopy Society of Canada. This year it will be held in St. Anne de Bellevue, Québec, on August 3-6, 2008.

For information on the conference, please contact Bruce Sithole (Paprican): bsithole@paprican.ca

STUDENT NEWS

Undergraduate Student Conferences - 2008

36th Southern Ontario Undergraduate Student Chemistry Conference (SOUSCC)

Queen's University, March 15, 2008.

Information e-mail: SOUSCC08@chem.queensu.ca

Western Canadian Undergraduate Chemistry Conference (WCUCC)

University of Manitoba, May 1-3, 2008.

Information e-mail: WCUCC2008@gmail.com

ChemCon (CIC-APICS Atlantic Student Chemistry Conference)

St. Mary's University, May 8-11, 2008.

For Information contact Amy Holland: amyholland1985@gmail.com

Colloque annuel des étudiants et étudiantes de 1er cycle en chimie

University of Sherbrooke, October 24, 2008.

Information on the conference is at <http://pages.usherbrooke.ca/colloque-chimie/>

Analytical Chemistry Presentation Awards at Undergraduate Student Conferences

Each of the four regional undergraduate conferences are eligible to receive \$150 for an award for the best oral or poster presentation on a topic related to analytical chemistry. A request from the conference organizers should be made to the ACD Chair, Dr. Robert McLaren (rmclaren@yorku.ca). Judging is the responsibility of designated faculty members in attendance at the meeting.

The Chemical Institute of Canada's (CIC) Career Services.

- The CIC is the association for all chemical professionals in Canada.

-The CIC provides a unique online job networking resource CareerSite for all chemical professionals and students

<http://www.cheminst.ca/careers/>

Increase your career opportunities by taking advantage of the CIC Career Services. Access Canada's sole chemical related job site. Opportunities abound! Receive multiple benefits with membership to The Chemical Institute of Canada.



OTHER BENEFITS OF MEMBERSHIP IN THE ACD (CSC)

In addition to the activities of the particular Student Chapter, membership will confer the following benefits for students:

- Receipt of Canadian Chemical News/ L'Actualité Chimique Canadienne for members in 2nd and higher years (by bulk mail);
- Eligibility to apply for group insurance on car and home insurance through Monnex Inc.;
- Use of the CIC Employment Service for students in the final year of their program who are seeking permanent employment after graduation;
- Substantially reduced registration fees for the annual CSC Conference;
- Full membership in the CSC in the first year after graduation for one-half of the full membership fee.

Eligibility for a range of scholarships and awards, a comprehensive list of which is given in this newsletter.

SCIENCE WEBSITES

www.chemweb.com/
www.chemcenter.org

FURTHER INFORMATION ON ANALYTICAL CHEMISTRY

ACD Web Page: <http://www.cheminst.ca/division/analytical/>

ACS Graduate Education in Analytical Chemistry:

http://www.acs-analytical.duq.edu/education_information.html



STUDENT AWARDS

ACD Undergraduate Student Travel Award

The intent of the award is to honor outstanding senior undergraduate students in analytical chemistry, to encourage them into postgraduate studies and to expose them to a stimulating scientific environment at the annual Canadian Chemical Conference. The Undergraduate Student Travel awards are open to all undergraduate students pursuing studies in the area of Analytical Chemistry and in attendance of a Canadian University, irrespective of the conference site of a given year. Each winner is expected to give a poster presentation of his/her work at the conference.

An award of \$500 will be made on the basis of the academic excellence and research promise of the nominees. These students will normally have completed a summer research project, or a Co-op term, or a senior year research project, in the area of analytical chemistry. The undergraduate student travel awardees and their supervisors are invited to attend the ACD Award Reception after the Annual General Meeting of the ACD at the annual meeting.

Each University Chemistry Department may nominate one candidate.

For more information concerning this award, Contact Professor Philip Britz-McKibbin at McMaster University.

ACD Graduate Student Presentation Award Edmonton, 2008

Graduate students who will be making poster presentations on a subject related to Analytical Chemistry in the ACD poster session are eligible for this award. Only one submission per student is permitted.

An *ad hoc* judging committee will be established prior to the meeting. Committee members will question each candidate and assess the quality of the poster. Two awards of \$150 will be given.

Students that had not flagged their abstract for "Award" can still be considered by contacting Mark.McDermott@ualberta.ca, or advising the judging committee at the conference.

Douglas Ryan Award Walter Harris Award (Graduate Student award)

These prestigious awards, named in honour of two senior and well-known analytical chemists in Canada (Dr. Douglas Ryan of Dalhousie University and Dr. Walter Harris from the University of Alberta) are presented in alternate years to an outstanding senior graduate student in analytical chemistry in Canada. Nominations are solicited from Canadian Universities each fall, by contacting both Chemistry Department Heads and all Professors who are active in research in analytical chemistry. The selection of the recipient is made on the basis of outstanding research contributions and the excellence of the academic record. The recipient of the award, who receives a cash award and framed certificate, is expected to make a presentation at the next annual CSC meeting. The awardee, and supervisor, are invited to attend the ACD Award Reception, normally held after the Annual General Meeting of the ACD at the annual CSC conference.

For more information about this award, contact the Analytical Division chairperson.

Research Profile

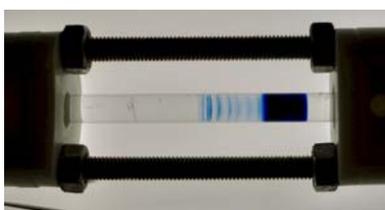
Professor Alan Doucette
Dalhousie University



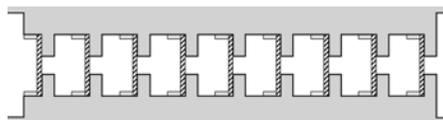
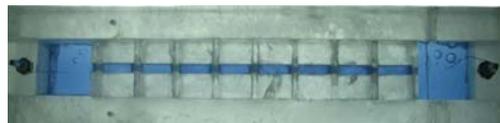
Advancement in biological science often follows technological advancements in analytical chemistry. Proteomics is a perfect example, where applications of mass spectrometry, separation science, and computational analysis have permitted the comprehensive characterization of proteins. In doing so, one can essentially obtain a 'molecular' description of an organism; thereby providing insights to biological pathways, assist in drug design, and discover disease biomarkers.

Despite the widespread acceptance of separation approaches for proteins such as ion exchange and reversed-phase LC, when compared to separation at the peptide level, these techniques perform quite poorly. Our research group focuses on the development of innovative technologies for improved analysis of proteome samples, incorporating separations and mass spectrometry. We are particularly interested in the optimization of liquid-phased fractionation of proteome mixtures at the intact protein level.

We have recently reported an effective mass separation device for biological samples that we have termed Gel Eluted Liquid Fraction Entrapment Electrophoresis (GELFrEE) (*Anal. Chem.* 2008). The unique characteristics of GELFrEE enable a broad mass range separation with minimal sample dilution, and at very rapid conditions. We have also optimized a solution isoelectric focusing device for proteome fractionation, improving the attainable focusing power, and recovery of protein while using this technique (*J. Prot. Res.*, 2008). Other work in the lab includes an optimization of chromatographic approaches for proteome separation, as well as improved throughput of the analysis.



Our 'GELFrEE' device



Our solution isoelectric focusing device

Ultimately, our group will apply our new strategies to biologically and clinically relevant samples. This is accomplished through collaborative efforts with other researchers in various fields of study. These and other projects in our lab therefore unfold from conception, to development, to validation, thus expanding the capacity for sample analysis, and ultimately advancing biological discovery.

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