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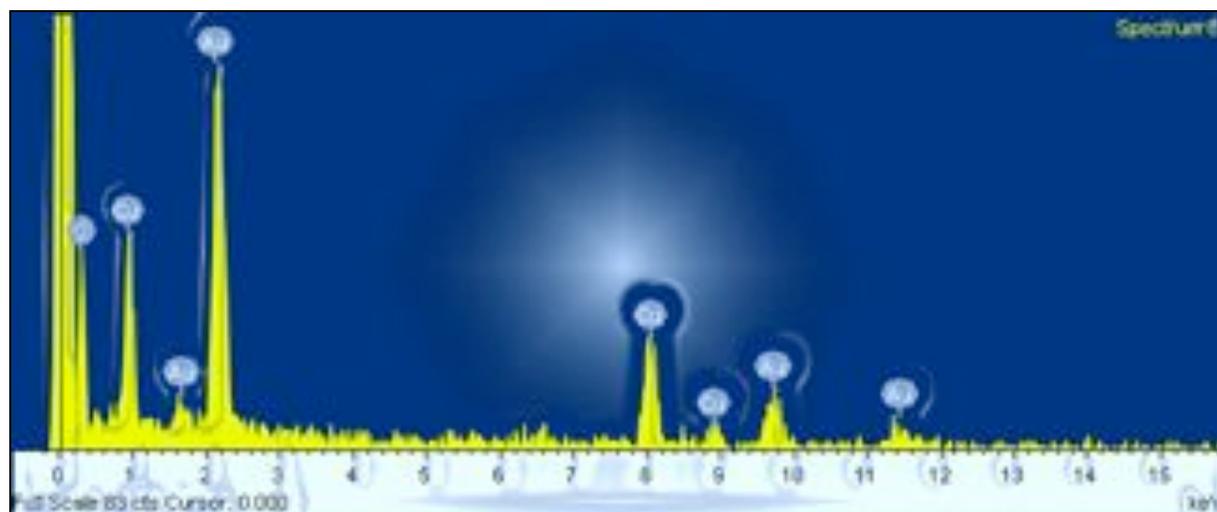
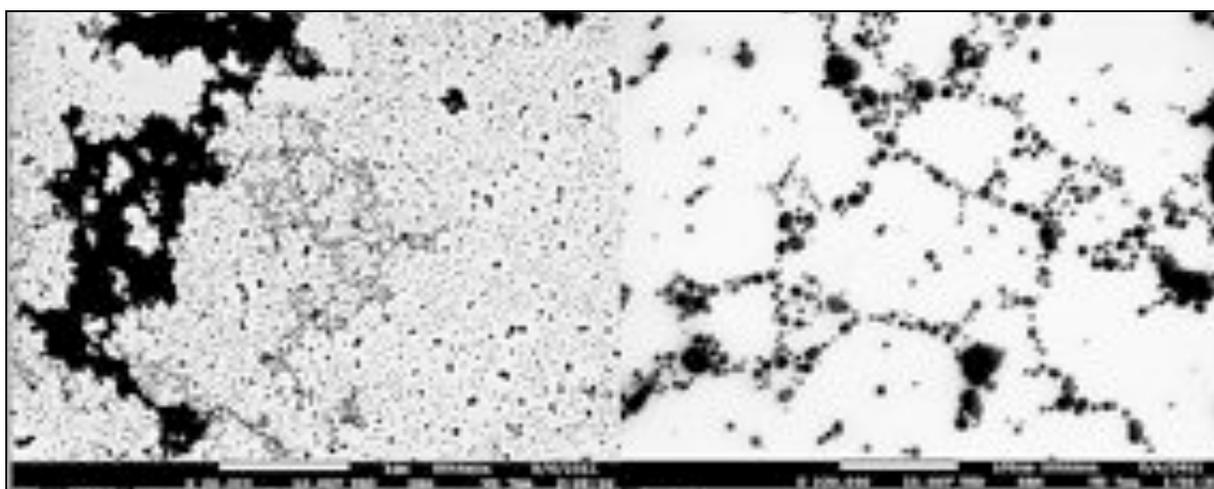
# THE GOLD STANDARD

## Annual Newsletter

Analytical Chemistry Division, The Chemical Institute  
of Canada

Spring 2014

Gold nanoparticles, Cover art by Daniel Martin, University of Ottawa



### In This Issue:

Upcoming Conferences, Student Award, Division Award  
Winners, Former Student Profile, Faculty profile, Funding  
Opportunities, ... And More

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### 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/career/>

*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.*



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### 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.

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### ANALYTICAL CHEMISTRY WEBSITES

The Chemical Institute of Canada:

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

American Chemical Society  
Division of Analytical Chemistry:

<http://www.analyticalsciences.org/>

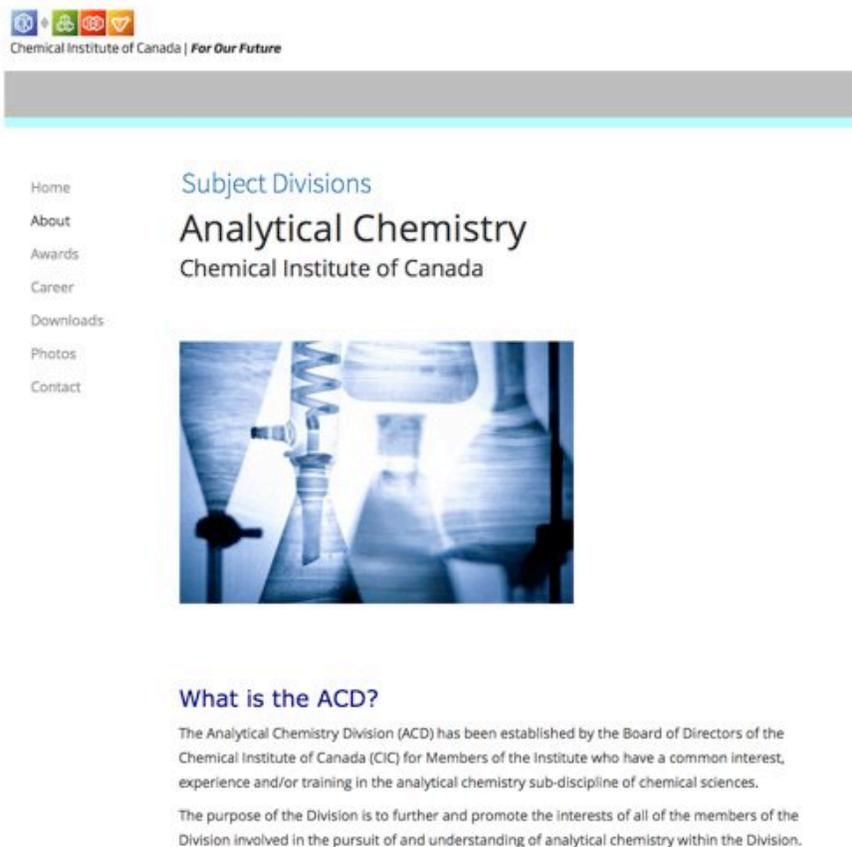
Conference of Small Molecule Science (CoSMoS):

<http://www.cosmoscience.org/>



# Three NEW ways to stay informed!

## 1. Visit our new ACD website [ANchem.ca](http://ANchem.ca)



The screenshot shows the website for the Analytical Chemistry Division of the Chemical Institute of Canada. At the top, there are social media icons for Facebook, Twitter, LinkedIn, and YouTube, followed by the text "Chemical Institute of Canada | For Our Future". A navigation menu on the left lists: Home, About, Awards, Career, Downloads, Photos, and Contact. The main content area features the heading "Subject Divisions" and "Analytical Chemistry Chemical Institute of Canada". Below this is a photograph of laboratory glassware, including a flask with a magnetic stirrer and several beakers. Underneath the photo is the section "What is the ACD?" with the following text: "The Analytical Chemistry Division (ACD) has been established by the Board of Directors of the Chemical Institute of Canada (CIC) for Members of the Institute who have a common interest, experience and/or training in the analytical chemistry sub-discipline of chemical sciences. The purpose of the Division is to further and promote the interests of all of the members of the Division involved in the pursuit of and understanding of analytical chemistry within the Division."

## 2. Follow ACD on Twitter [@analytical\\_chem](https://twitter.com/analytical_chem)



## 3. Subscribe to ACD eMail list <http://anchemca.wordpress.com> (hit "Follow" at bottom right corner)

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## Upcoming Conferences

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### ICASS 2014

Dates and venues for the 60<sup>th</sup> edition remain to be announced.

<http://www.csass.org/>

### CSC 2014 – Vancouver

The 97<sup>th</sup> annual Conference of the Canadian Society for Chemistry will be held this year in Vancouver. The conference takes place June 1-5<sup>th</sup>, 2014. Watch for further details about the conference at the website:

<http://www.csc2014.ca>

**Analytical Chemistry Division Annual General Meeting** This year's meeting will be held at the Vancouver Convention Centre on Tuesday June 3<sup>rd</sup>. Please refer to the program for time and location.

**Analytical Chemistry Division Annual CSC Dinner** As previous years, the Annual Dinner will be held during the CSC Conference, immediately after the AGM. This annual event brings together members of the analytical community for a fun evening and is a great opportunity for students and senior members to meet and talk. Everyone in the analytical community is welcome. Details to follow - [ANchem.ca](http://ANchem.ca)

### STUDENT AWARDS

There will be both Undergraduate and Graduate Poster Awards at CSC 2014 in Vancouver.

Analytical Posters will be on Wednesday June 4.

## Undergraduate Student Conferences – 2013 - 2014

### ICPOC 2014

22nd IUPAC International Conference on Physical Organic Chemistry, August 10-15, 2014  
Ottawa, ON

<http://events.science.uottawa.ca/icpoc22/>

### CBGRC 2013

**16th Annual Chemistry and Biochemistry Graduate Research Conference**

**November 22nd, 2013**

**Concordia University**

Best Oral in Analytical and environmental chemistry - **Simon Boudreault** from Université de Sherbrooke

Best Poster - **Atefeh Rafiei** from Université du Québec à Montréal

### **SOUSCC 2014**

Southern Ontario Undergraduate Student Chemistry Conference, March 29, 2014  
Windsor, ON

<http://souscc.cs.uwindsor.ca>

Analytical Winners

1. **Joseph Turnbull**, University of Western Ontario
2. **Filipe De Souza**, University of Western Ontario
3. **Scott Truman**, University of Western Ontario

### **WCUCC 2014**

Western Canada Undergraduate  
Chemistry Conference, May 1, 2014  
Victoria, BC

<http://web.uvic.ca/~wcucc/>

### **ChemCon 2014**

CIC-APICS Atlantic Student Chemistry Conference  
Wolfville, NS, May 22-24, 2014

<http://scienceatlantic.ca/conferences/>

### **Analytical Chemistry Presentation Awards at Undergraduate Student Conferences**

Each of the four regional undergraduate conferences are eligible to receive financial support for awards in oral or poster presentations on a topic related to analytical chemistry. A request from the conference organizers should be made to the ACD Chair ([chair@ANchem.ca](mailto:chair@ANchem.ca)). Judging is the responsibility of designated faculty members in attendance at the meeting. Organizers should later notify the ACD Chair of the award winners.

### **News**

The updated Exec Members contact list is on our website: <http://www.anchem.ca/about.html>

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## Announcement of 2014 Analytical Chemistry Division Awards

### **Fred Beamish Award 2014**

*Sponsored by the Analytical Chemistry Division, CIC*

**Juewen Liu**, University of Waterloo

Award presentation during CSC: Tuesday June 3<sup>rd</sup> at 10:20 in room 201

### **Maxxam Award 2014**

*Sponsored by Maxxam Analytics*

**Sergey Krylov**, York University

Award presentation during CSC: Thursday June 5<sup>th</sup> at 10:20 in room 201

### **W.A.E. McBryde Medal 2014**

*Sponsored by AB Sciex*

**Lars Konermann**, Western University

Award presentation during CSC: Monday June 2<sup>nd</sup> at 14:00 in room 202

### **2014 ACD Undergraduate Student Travel Award**

**Ashley Robinson**, Saint Mary's University (Supervisor: Christa Brosseau)

Award presentation during CSC: Poster session Monday June 2<sup>nd</sup> at 17:40 in West Ballroom C & D

### **2014 ACD Graduate Student Award in Honour of Douglas Ryan**

**Mirzo Kanoatov**, York University (Supervisor: Sergey Krylov)

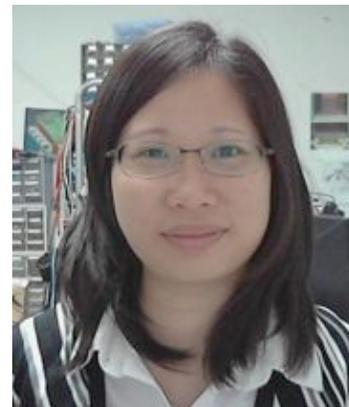
Award presentation during CSC: Wednesday June 4<sup>th</sup> at 10:20 in room 202

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## **FORMER STUDENT PROFILE: MEET Dr. April K.Y. Wong**

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**Title:** Research Scientist  
**Company:** Hai Kang Life Corporation Ltd.  
**Undergraduate Institution:** University of Waterloo  
**Graduate Institution:** University of Toronto  
**PhD Supervisor:** Prof. Ulrich Krull



### **Favorite Memory of Graduate School:**

I have many favourite memories of graduate school. One of them was just having very supportive labmates who were not only colleagues but friends who spend time together and work out many research frustrations. Another favourite memory of mine was at the Gordon Research Conference on Bioanalytical Sensors. After presenting my poster to a prof from another university, he was very interested in starting a collaboration with me. After working so hard on a project it is definitely gratifying to receive such positive feedback. It was also at that conference where I was elected to be a co-chair for the following graduate student conference. I was thrilled to be able to organize the next conference.

### **Hardest Thing After Graduating:**

The hardest thing after graduating was definitely deciding how much research experience did I want to get before starting a family. I did a postdoc, then I ended up not waiting too long before having a baby. A few months after my daughter was born, I saw a great opportunity in a diagnostic chip company. I was excited to find a position in my area of expertise. Anything is possible especially if you have great support around you.

### **Nicest Thing After Graduating:**

It was nice to start my own career path outside of the comforts of graduate student life.

### **How I Came to My Current Position:**

I used a job search website.

### **Best Career Advice I Ever Received:**

Get a mentor and expand your research network by actively participating in conferences.

### **Analytical Chemistry Students Should:**

Learn as many analytical techniques as you can by getting hands-on experience on various analytical instruments. Volunteer to be responsible for writing standard operating procedures as well as keeping track of maintenance and repairs for an instrument in your lab.

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If you have suggestions for candidates for "Former student profiles", please send them to [jf.masson@umontreal.ca](mailto:jf.masson@umontreal.ca)

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## FACULTY PROFILE:

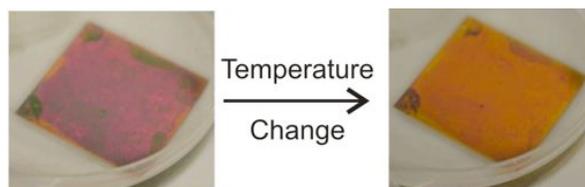
## MEET Dr. Michael J. Serpe

**Professor Michael J. Serpe**  
Department of Chemistry  
University of Alberta  
michael.serpe@ualberta.ca  
[http://www.chem.ualberta.ca/~serpe/Serpe\\_Group/Serpe\\_Group\\_Home.html](http://www.chem.ualberta.ca/~serpe/Serpe_Group/Serpe_Group_Home.html)



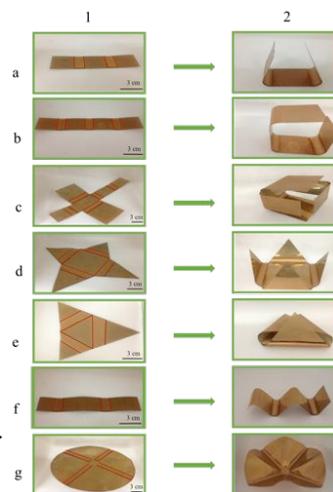
Michael J. Serpe received his B.Sc. at the University of Central Florida in 2000, and his Ph.D. from the Georgia Institute of Technology in 2004. After conducting postdoctoral research in industry, he joined the group of Professor Stephen L. Craig at Duke University in 2006 as a Postdoctoral Fellow. He joined the Department of Chemistry at the University of Alberta as an Assistant Professor of Analytical Chemistry in 2009 and was awarded early tenure and promoted to Associate Professor in 2014. Prof. Serpe has been named a Grand Challenges Canada Rising Star in Global Health, received the 2013 Petro Canada Young Innovator Award, and has been named one of Edmonton's Top 40 Under 40 by Avenue Magazine for 2013-2014.

Since 2009 his group has been developing polymer-based materials to solve environmental and health-related problems. One major advance was the group's discovery of optical materials (etalons) that exhibit color that depends on temperature (see Figure). This property is a result of the structure of the device and its composition; the device is constructed by sandwiching a layer of thermoresponsive poly (*N*-isopropylacrylamide)-based microgels between two thin metal layers. Since this discovery in 2009, the group has exploited the devices for numerous applications, including as sensors for DNA and proteins. The main benefits of this technology are its low cost ( $< 0.02$  CAD cm<sup>-2</sup>), ease of use, and simplicity of signal readout (a color change). We are further developing the technology such that it can be used in resource-limited settings to detect DNA and/or protein-based biomarkers for diseases such as malaria and tuberculosis.



The group has also developed polymer-based devices that are capable of self-folding/bending in response to changes in atmospheric humidity. Specifically, the device's polymer layers swell when exposed to humid air, while they deswell in dry air. This swelling/deswelling causes the devices to uncurl/curl, respectively, mimicking an arm. These polymer-based "arms" are capable of lifting many times their own mass, which could be used in robotics, and as actuators. Recently, the devices have been engineered to self-fold from two-dimensional sheets into three-dimensional objects, as can be seen in the Figure. We are further developing this technology such that it can be used for sensing applications.

Finally, utilizing analytical, physical, and synthetic chemistry the group is designing novel systems for: controlled/triggered drug delivery; water remediation/waste reclamation; and antibacterial coatings. Additionally, the group is building and developing new analytical instruments to characterize the conformational state of surface bound polymers and how it depends on confinement.



## **Student Cover Art**

**by Daniel Martin, University of Ottawa**

### **Gold nanoparticles**

Artwork features an energy dispersive X-Ray spectroscopy (EDX) and scanning electron microscope (SEM) of synthesized gold nanoparticles. The left SEM image has a magnification scale of 1 micron, indicated by the white bar. The right side SEM has a magnification of 100nm and shows a more close-up view of the particles, also featuring their tendency to agglomerate. The EDX results successfully identified the particles to be gold by featuring a main peak (Au). The carbon peak is a contaminant because PVP(polyvinylpyrrolidone) was used to stabilize the particles during synthesis. The copper peaks come from the support lens that is made of copper.

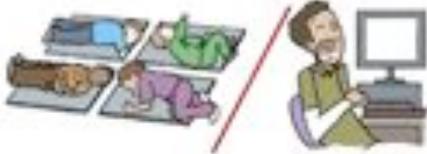
Daniel Martin is a 2013 Chemistry and Chemical Engineering graduate from the University of Ottawa. He has done research in sin gas production, gas phase catalysis and nanoparticle synthesis. His research focused on enhancing the catalyst activity by lowering surface area, changing metal ligand configuration and varying particle size. He is now actively seeking employment in Canada, especially in Ottawa in either chemistry or chemical engineering.

**To have your work featured as the next  
newsletter cover page, submit your  
artwork to:**

Dr. Jean-Francois Masson  
jf.masson@umontreal.ca

# HOW GRAD SCHOOL IS JUST LIKE KINDERGARTEN

ALL DAY NAPPING IS ACCEPTABLE



THERE IS CONSTANT ADULT SUPERVISION



YOU GET COOKIES FOR LUNCH



MOST COMMON ACTIVITY:  
CUTTING AND PASTING



THERE ARE NO GRADES  
(YOU JUST HAVE TO PLAY WELL WITH OTHERS)



CRYING FOR YOUR MOMMY IS NORMAL



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Have a suggestion or an item for the next Newsletter? Let us know!

e-mail: [jf.masson@umontreal.ca](mailto:jf.masson@umontreal.ca)