



TA Teaching Awards

In order to promote and recognize excellence in teaching (tutorial and laboratory) by Teaching Assistants in Chemistry in 1st, 2nd, and 3rd years, the following awards are presented each year. Awards for the 2008-09 academic year were presented at the TA training day on September 10, 2009:

David Thomas Teaching Assistant Award – Zhihan Zhou
Fisher Scientific Teaching Assistant Award – Shalyn Littlefield
Din Lal Teaching Assistant Award – Adam Daley

Varian Teaching Assistant Award – Shihao Wang
Merck Frosst Teaching Assistant Awards – Darrell Dean and Katherine Groom
William Patrick Doolan Prize in Chemistry – Ying Yin Lau



Award recipients (l to r): *Shihao Wang, Zhihan Zhou, Ying Yin Lau, Adam Daley, Shalyn Littlefield, Katherine Groom, Darrell Dean.*

New Graduate Society

The Department of Chemistry greatly appreciates the financial support given by the Queens Graduate Chemistry Society for the TA day event. The Queens Graduate Chemistry Society's elected executives are as follows:

Darrell Dean, President
 Amy Holland, VP Internal Affairs
 Alaina Boyd, VP Finance
 Patrick Cashin, VP External Affairs
 Trisha Ang, 5th Floor Rep
 Andrew Fraser, 4th Floor Rep
 Thomas Kraft, 3rd Floor Rep



Commercialization of Queen's Chemistry Discovery Goes Global



Spurred into existence by the Walkerton tainted water tragedy, Pathogen Detection Systems, Inc. was founded in 2003 to commercialize the novel fibre-optic sensor technology developed by Stephen Brown, Associate Professor of Chemistry, for monitoring the quality of municipal water systems. Now known as ENDETEC, the global sensor platform of Veolia Water Solutions and Technologies of Paris, France, the company has recently received a \$2.5 million grant from the Ontario Ministry of Research and Innovation to expand its portfolio and develop a broad range of microbiological and chemical sensing technologies. Present at the announcement held at Queen's Innovation Park on May 26 were (l to r) *David Dolphin*, President of ENDETEC, *Stephen Brown* and *John Gerretsen*, Ontario Minister of the Environment and MPP, Kingston and the Islands.

Photo by: Matthew Lloyd David McBain, Director of Industrial Marketing at Veolia Water Solutions and Technologies

Q-CHeM CHRONICLES



AUGUST 2010

Pathogen Detection Systems: A TECH TRANSFER STORY

Ten years ago, the Walkerton tragedy shocked Canadians into a whole new level of awareness of drinking water quality. In the wake of this event, Stephen Brown's research group set about developing a new technology for detecting bacteria in water. In a classic story of serendipity, they had already been working on fibre-optic sensors for detecting aromatic compounds as part of a study of impacts of contaminants on fish. They discovered that they could combine the fibre-optic sensor and aromatic compound metabolites to detect the enzymes that happen to be standard indicators of *E. coli* and coliform bacteria. In collaboration with Peter Aston's group in Microbiology and Immunology, they developed a test with automated detection for those target bacteria. The test exceeds the performance of current lab tests where a technician does visual interpretation, and works in highly coloured and/or opaque samples that can't be tested by current methods.

The company *Pathogen Detection Systems, Inc.* (PDS) was formed in 2003 as a spin-off to commercialize the Brown group's technology. The new test technology, patented worldwide through PARTEQ Innovations, was licensed to PDS. With research funding raised by the company, a complete test system was produced including a portable instrument and single use test cartridges. These prototype instruments were used to demonstrate the test technology on a variety of sample types and bacteria levels. The Ontario Ministry of Environment commissioned tests with these units, and the performance was equal to or better than the reference tests used in the Ministry's labs. As a result, this test is now approved for use in licensed labs in Ontario. Further trials for regulatory approval in the US, Europe and elsewhere are ongoing.

PDS continued promoting the technology, and eventually caught the eye of *Veolia Water Solutions and Technologies* (VWS), the technology arm of *Veolia Environnement* of France, the world's largest water and environmental services company. This led to the purchase of PDS by VWS in early 2009. This deal included a continuing research contract with the Brown group to expand the capabilities of the technology and to develop other water quality related tests. It turns out that VWS was in the process of creating a global sensor platform for new water monitoring technologies, and the bacteria detection technology from Queen's was a perfect fit with this initiative. In fact, VWS was so impressed with the research capabilities at Queen's and the funding track record of both PDS and the Brown group, they decided to base the global sensor platform in Kingston. The name *ENDETEC* has been selected for the platform, including the technologies of PDS and other groups, and in the

future the *ENDETEC* brand will appear on all monitoring technologies. *ENDETEC* and the Brown group continue to work together, and have secured further matching funding from NSERC, Sustainable Development Technology of Canada, and the Ontario Ministry of Research and Innovation.

Another exciting aspect of this arrangement is the opportunity to establish further collaborations with other VWS and Veolia units. Veolia's Centre d'Analyses Environnementales, in Paris, has done extensive testing of the old PDS system, including on water from the Marne and Seine rivers. Another VWS company called ELGA, located outside London, England, is heavily involved in the design and production of the next generation of ENDETEC instruments, which will be released in Fall 2010. Also exciting is the wide ranging relationship that is being built between Veolia and other activities at Queen's. VWS is now a partner in GreenCentre Canada, has begun recruiting Queen's students for internships and positions after graduation, and has invited Queen's to join their "Club of Universities". The common interests of Veolia and many Queen's researchers in water related issues means that this new relationship can be expected to produce additional exciting results into the future.

<http://www.endetec.com/>



Desktop Testing Unit

2009-2010 DEPARTMENTAL HIGHLIGHTS

July 2009

Cathleen Crudden is promoted to the rank of Professor.

August 2009

Nick Mosey receives an Ontario Early Researcher Award from the Ontario Ministry of Research and Innovation.

Victor Snieckus is honoured at the 22nd International Congress on Heterocyclic Chemistry held in St. John's, Newfoundland.

September 2009

Stan Brown is elected as a Fellow of the Royal Society of Canada.

PARTEQ Innovations is awarded \$13.6 million from the Ontario Government in support of GreenCentre Canada.

Congratulations to Klaus Bescherer (Loock group) on his wedding to Marina on September 9.

The Queen's Chemistry Innovation Council annual meeting is held on September 25. The QCIC Welcoming Dinner featured Principal Daniel Woolf as the guest speaker.

October 2009

Richard Oleschuk is one of five Queen's faculty nominated for TV Ontario's 2010 Big Ideas Best Lecturer competition for their excellence in teaching and ability to engage students.

November 2009

Nick Mosey receives the John C. Polanyi Prize in Chemistry at the University of Toronto's Massey College.

Pathogen Detection Systems, Inc., a start-up company co-founded by Stephen Brown, is acquired by the multinational company Veolia Water Solutions & Technologies and receives \$2.4 million in federal funding towards the development of its next generation of water monitoring systems.

December 2009

Annette Keyes receives a Queen's Special Recognition for Staff Award at the Principal's Annual Holiday reception in Grant Hall on December 1.

Congratulations to Graham Gibson (Oleschuk group) on the birth of his son, Colin Graham Gibson, born on December 10.

January 2010

Queen's Chemistry is ranked in the top 100 chemistry departments worldwide by Academic Rankings of World Universities for 2009.

Congratulations to Cathleen Crudden on the birth of her daughter Caitlyn Alexandra Doyle, born on January 4.

February 2010

Gregory Jerkiewicz becomes a member of the newly formed Ertl Centre for Electrochemistry and Catalysis.

Gregory Jerkiewicz and Diane Beauchemin along with three other researchers from Simon Fraser University are awarded a NSERC Strategic Grant of \$574,140.

Richard Oleschuk (co-PI) along with Ian McWalter (PI) (Canadian Microelectronics Corporation) and a team of 300 researchers across Canada receive an CFI Grant for a project entitled "Embedded Systems Canada". Embedded Systems Canada (emSYSCAN) is a \$48 million project proposed by 200 faculty members in 37 universities situated in nine provinces across Canada. emSYSCAN will provide platform-based microsystems design and prototyping environments to enable, stimulate, and extend nationwide university research.



Message from the Head

BY BOB LEMIEUX

Another busy and eventful year has gone by and it's time for me to report on the state of the Chemistry Department and acknowledge our success stories and ongoing challenges. Many of you are keenly aware of the financial challenges Queen's is facing, and of the transition the university is going through as the Woolf administration is getting established and moving forward. In January, Principal Woolf issued his visions statement "Where Next?" as the starting point of a year-long academic planning exercise that will culminate in the formulation of a new university academic plan in December. It is unclear at this juncture how the academic plan will unfold, but it is likely that Queen's will have to change how it does business, and the Chemistry Department is well positioned to contribute to the plan in a constructive and innovative fashion. For example, an online version of the 2nd year organic chemistry course for Life Science students, CHEM 281/282, was launched for the first time in early May (see p. 4). The response to this first offering has been very encouraging, and the plan is for Queen's Continuing and Distance Studies to aggressively market this course across Canada and eventually offer it several times a year, thus creating a significant new revenue stream that will leverage the Queen's brand in the online education market.

Last September, the *Mass Spectrometry and Proteomics Services Unit* (MSPSU) was officially granted Unit status by the Senate Advisory Research Committee. The MSPSU is a partnership between the Chemistry Department and the Protein Function Discovery group in the Faculty of Health Sciences to create a sustainable mass spectrometry facility in Chernoff Hall with state-of-the-art instrumentation and technical expertise. Another Chemistry-based entity that gained Unit status at Queen's is *Snieckus Innovations* (SI), a new research and development initiative led by Victor Snieckus (see p. 3), which focuses on developing synthetic process solutions for the pharmaceutical industry while continuing to pursue fundamental research in synthetic methodology; SI is temporarily housed in Chernoff Hall and will move permanently to Innovation

Park at Queen's in January 2011. *GreenCentre Canada* is celebrating its first year anniversary and the rapid growth of this new Centre of Excellence for Commercialization and Research has exceeded expectations. The GCC business model enables the commercialization of academic research by evaluating invention disclosures in green chemistry and technology from universities across the country and taking the most promising ones through the commercialization pipeline in partnership with several industrial members, including the multinational company *Veolia Water Solutions and Technologies* (see p. 1).

As you can read in this edition of the *Chronicles*, there have been many individual and collective success stories in the Department, including the 2010 CIC Catalysis Award to Stan Brown, a Killam Fellowship to Philip Jessop, and a CREATE grant of \$1.59 million over six years to a group of ten faculty led by Cathleen Crudden. Queen's Chemistry was also ranked in the top 100 chemistry departments worldwide by Academic Rankings of World Universities in 2009, one of only five Canadian chemistry departments in the top 100 (see <http://www.arwu.org/ARWUSubject2009Chemistry.jsp>).

So, in closing, I continue to be optimistic that Queen's Chemistry is strongly positioned to play an important role in Queen's new academic planning. As always, we need the support of our alumni and friends, many of whom have generously contributed to the Chemistry Gift Trust, the Chemistry Seminar series and to student prizes and scholarships, including the 1960's Scholarship Fund, which will generate its first graduate scholarship this fall. To those of you who have given to Queen's Chemistry this past year, I sincerely thank you on behalf of the Department. If you have yet to make a gift, I urge you to give it serious thought; in these uncertain times, your generosity will make a big difference. If you wish to discuss making a gift or a planned gift from your estate, please contact Patty McHenry or Lisa Sykes from the Office of Advancement (see p. 7 for their coordinates).

Let's *Make Chemistry Matter* at Queen's!

Far Off the Beaten Track

Chemistry research can sometimes lead to applications that really appear “far off the beaten track”. As an example, consider that a research project on fiber optic detectors for micro-analytical methods of biomolecule detection has now led to an improved guitar pickup!

Since 2002, Peter Loock, his collaborators and students have developed a number of devices that combine telecom technology, i.e. fiber optic cables, lasers and detectors, with flowsystems that are suited for very small samples. One of the first devices – developed jointly with Stephen Brown and Richard Oleschuk – was a fiber optic absorption detector that was immune to light intensity fluctuations and was able to detect dilute (micromolar) analytes in liquid sample volumes of less than 10 nanoliters.

Another device was based on the sensitivity of some fiber optic gratings to refractive index changes. In collaboration with Cathleen Crudden and Stephen Brown, this device was fashioned into a sub-ppm level detector for lead in water.

A third device made use of a different class of fiber optic gratings that are sensitive to vibration and sound. Peter Loock’s group and his collaborators at DRDC Suffield showed that these gratings perform as ultrafast microphones that can be used to detect minuscule amounts of an analyte through the photoacoustic effect.

Now, if gratings react to sound, shouldn’t it be possible to use them as pickups for musical instruments? It took only two hours to put this idea into practice and to demon-

strate that a fiber optic grating taped to a guitar can indeed act as a very light pickup. Nick Trefiak and Scott Hopkins, both guitar players, promptly recorded the bass riff of Pink Floyd’s “Money” and sent the mp3 file to Peter Loock as a not-so-subtle hint that this idea was worth further development. They also dubbed the new technology the “photonic guitar” and pointed out that electric guitars are “definitely a 20th century technology”. While the first version resembled a device created in Red Green’s workshop, the photonic pickup has since matured to a level where professional musicians are becoming intrigued. A Montreal company has developed refined versions of the photonic pickup and a luthier has started building a custom guitar in which 10 of these fiber optic sensors are embedded into the wood of the guitar. One of the members of Kingston’s own Tragically Hip expressed interest in the technology, and the Canadian Institute for Photonic Innovations has given financial support to the project.

Needless to say, the development of guitar pickups is not something that is typically associated with a bunch of physical chemists, and the three guitars in Peter Loock’s lab (one with an NSERC sticker!) have raised a few eyebrows. On the other hand, the project is not as frivolous as it may seem, since the development of a better fiber optic guitar pickup will also benefit the original project on chemical sensing. And, who knows, maybe tomorrow’s garage bands will fire up their lasers instead of their amps..!



Peter Loock and Bithun Sarkar in the Loock lab

Solving Synthetic Challenges at Queen’s



Solving Synthetic Challenges is the mission of *Snieckus Innovations* (SI), a new laboratory in Chernoff Hall which has state-of-the-art synthetic chemistry expertise, long-standing relationships with the pharmaceutical industry, and an extensive library of compounds of potential value as medicinal agents. Its mandate? Take on challenging syntheses required by pharma and agro industries in their quest to develop new medicinals and crop enhancing agents.

“We wish to take advantage of the momentum of *Queen’s* commitment to develop academia-industrial partnership,” says Victor Snieckus, the Director of SI, “and create an environment for collaboration among the many excellent departments at *Queen’s* involved in research activities which are related to solving human health and disease states.” Snieckus has discovered and developed syntheses which have been applied worldwide in the pharmaceutical industry for technologies to make medicinal agents. For example, his research has led to commercial processes at Merck, Novartis, and Bristol-Myers Squibb for drugs that are used in treatment of inflammation and AIDS.

Evolving from discussions nurtured by Kerry Rowe, VP-Research and Bob Lemieux, Head of the Chemistry Department, the proposal for SI is being graciously supported by funds from Dr. Alfred Bader, well known for his philanthropy of *Queen’s* University. Professor Snieckus, who held the prestigious Bader Chair in Organic Chemistry until 2009, feels that he now has a new incentive. “This initiative will provide *Queen’s* with a high quality institution in changing times which will bring collaboration with pharma, stimulate interdisciplinary activities with other departments and, potentially, create a vibrant environment which will bring other industries into the Kingston area.”

Dr. Michael Wells, Executive Director of Snieckus Innovations reinforces the concept and aims of the new laboratory: “The aim to provide researchers with both the molecules, and where needed, the know-how, to synthesize difficult compounds for use in areas as diverse as biochemistry, ag-biotech, medicinal

continued on page 4



Message from the Manager

BY JOHANN JARDINE

It gives me great pleasure to begin this year's update by announcing that Annette Keyes, our graduate assistant, was the recipient of a Special Recognition for Staff Award for 2009. Annette received her award from Principal Woolf at the Principal's Holiday Reception on Staff Appreciation Day, December 1. This award recognizes staff members who consistently make contributions to the learning and working environment at Queen's University at a level significantly beyond what is normally expected. On April 29, 2010, the department wished one of its undergrad lab technicians, Ted Ison, the very best as he sails off into retirement following 28 years of dedicated service with the University.

Thanks to a generous gift by an anonymous donor, class pictures are again proudly displayed in the Chemistry Department. Approximately 50 graduating class picture composites ranging from 1920 to 2009 have been mounted on one of the walls in the lounge area of the 4th floor in Chernoff Hall. Please come take a look next time you're in Chernoff Hall.

On July 1, 2009, the Chemistry and Physics departmental stores joined forces to better serve both departments by offering a broader range of products in one centralized location

in Chernoff Hall. Rob Dumont (Chemistry) and Kim MacKinder (Physics) share responsibilities for the new Science Stores. Science Stores is also the central receiving location for all chemicals sent to the University, and Ben Fiegen of Environmental Health and Safety (EH&S) is responsible for bar coding and entering all chemicals into the Vertere Chemical Inventory database. The department converted to the Vertere Chemical inventory database in March 2010, and research and teaching labs have access to the database to view records for all chemicals within the department. The Vertere system also provides emergency personnel access to all records for every chemical on campus.

Our focus on safety has led to several improvements over the past year. In December, the department instituted monthly lab self-inspections. Records of these inspections are maintained and readily available in the event of an audit by Queen's EH&S or Labour Canada. The partnership between Physics and Chemistry store personnel extends to monthly safety inspections of all fire extinguishers, safety showers, eye wash stations and common areas in both Stirling Hall and Chernoff Hall. In the fall, EH&S introduced a new chemical waste disposal protocol across the



Staff Award Ceremony (l to r) Robert Lemieux, Annette Keyes and Richard Olechnuk

University. An independent waste disposal company collects chemical waste and empty containers from each lab on a weekly basis.

Another significant change for the department this year was the implementation of the Queen's University Administration Systems Replacement (QUASR) project. QUASR is a 3-year project to replace existing Student, Human Resources, Finance and Research administrative systems with a new market-leading, web-based financial software package. The new software will improve levels of service delivery, reduce risk, improve access to information and integrate systems across departments. Other major projects in the works include a redesign of our departmental website, and the relocation and remodelling of several labs in preparation for the installation of the new Bader chair in 2011.

Solving Synthetic Challenges continued from page 3

chemistry and environmental chemistry." "Victor and his team handle the molecular gymnastics and I take care of the business matters – it is a great partnership." The SI team currently consists of Dr. Johnathan Board, Research Manager, Dr. Toni Rantanen, and an additional postdoctoral fellow to be added imminently.

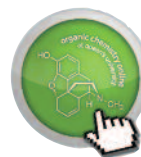
Projects are already in progress at SI. "We have completed several synthetic chemistry projects for both big pharma and small biotech firms," indicates Dr. Board. "Fortunately, I know the 'we need this molecule yesterday' attitude of pharma from years of consulting experience," adds Professor Snieckus, "and John, Toni, and Tim are excellent and enthusiastic chemists so it is a joy to work towards working on exciting molecules and meeting these deadlines."

The SI team is scheduled to relocate into new laboratories at Queen's Innovation Park in January 2011.



Snieckus Innovations (l to r): Victor Snieckus, Toni Rantanen, Johnathan Board, Mike Wells

New Online Organic Chemistry Course



The Department of Chemistry, in conjunction with Continuing and Distance Studies, is offering new online courses in 2nd year organic chemistry (CHEM 281 and 282), starting May 3rd, 2010, partly to generate new revenues but also to adapt to today's fast-paced educational environment. As the first of a package of "pre-med" courses, this new online course offers students true flexibility in their studies and a highly personal approach to distance education, emphasizing interaction with instructor and TAs through a virtual classroom environment optimized for learning. Demand for the course has exceeded expectations. Dates for subsequent roll-outs of the course will be posted soon.

Excellence in Research and Teaching



Stan Brown



Philip Jessop



Nick Mosey



Bill Newstead

Queen's faculty were once again recognized at various levels for their excellence in research and teaching. Stan Brown received the Catalysis Award of the Chemical Institute of Canada, which is presented biennially to an individual who has made a distinguished contribution to the field of catalysis. Stan was also elected as Fellow of the Royal Society of Canada in recognition of his outstanding research achievements in physical organic, bio-organic and bio-inorganic chemistry. Philip Jessop received a Killam Research Fellowship, one of eight awarded nationwide in 2010 to support scholars engaged in research projects of outstanding merit in the humanities, social sciences, natural sciences, health sciences, and engineering. Killam Fellowships are among Canada's most distinguished research awards, and it is the third time in the past ten years that a Killam Fellowship has been awarded to a Queen's Chemistry faculty; the other two previous recipients are Victor Snieckus (2000) and Stan Brown (2007). Nick Mosey received the John C. Polanyi Prize in Chemistry during a ceremony at the University of Toronto's

Massey College last fall. The Polanyi Prize was established by the Government of Ontario to recognize outstanding researchers in the early stages of their career at an Ontario university. Nick also received an Early Researcher Award from the Ontario Ministry of Research and Innovation, which recognizes the best and brightest young research talent in Ontario. Finally, Bill Newstead received the Frank Knox Award, presented annually by the Alma Mater Society to two instructors who have demonstrated an outstanding commitment to the education of students at Queen's through their teaching excellence. The Frank Knox Award is the highest honour given to instructors by students at Queen's, and this is the second time Bill has received the award, a distinction only one other Queen's faculty has achieved over the past 20 years. Bill also received the Applied Science Teaching and Learning Award, which recognizes individuals teaching first year Applied Science courses who contribute most to establishing a good teaching and learning environment in the classroom. This is the fifth time Bill has received this award!

Congratulations to the class of 2010!



Front row (from left): Zahra Ghoshouni, Yeseul Jun, Stephanie Hofley, Amy Kong, Christina Sun, Kyungmi Lee, Emily LaBine, Jessica Sonnenberg

Back row (from left): Mark Raycroft, Stephen Murphy, Lisa Kozycz, Laura Hull, Paul Ricketts, Maria Varlan, Jonathan Moir, Sarah Dougherty, Jennifer Cosman

March 2010

Philip Jessop receives a Killam Research Fellowship from the Canada Council for the Arts

A group of ten Queen's faculty are awarded an NSERC Collaborative Research and Training Experience (CREATE) grant of \$1.59 million over six years. The group is led by Cathleen Crudden, and includes Bob Lemieux, Peter Look, Hugh Horton, Natalie Cann, Richard Oleschuk, Nick Mosey, and Jean-Michel Nunzi from Chemistry, Mike Cunningham from Chemical Engineering, and Kevin Robbie from Physics.

Andrew Fraser (Baird group) receives the McAdie Doctoral Student Award.

The Chemistry Banquet is held on March 19. Suning Wang receives the 2010 Chemistry Graduating Class Award for Excellence in Teaching.

Bill Newstead receives the 2009-2010 Frank Knox Award for Excellence in Teaching and the Applied Science Teaching and Learning Award.

Philip Jessop's research on switchable solvents is featured in the March 22 issue of Chemical and Engineering News.

April 2010

The 4th year project presentations, the Smith Prize and Sullivan Prize competitions, and the QCIC Careers Luncheon are held on April 12.

Eric Keske (Crudden group) receives the Christopher Knapper Excellence in Teaching Assistance award from the Alma Mater Society. The award recognizes teaching assistants who have demonstrated an outstanding commitment to the education of students of Queen's University.

Undergraduate lab technician Ted Ison retires after 28 years of service at Queen's.

The following students win national NSERC awards for 2010-2011: Jeff Crouse (CGSM), Paul Ricketts (CGSM), Jessica Sonnenberg (CGSM), Christina Sun (CGSM), Ben Glasspoole (PGSD2), Jonathan Byer (PGSD3), Veronique Laberge (PGSD3), and Sean Mercer (PGSD3).

Ontario Graduate Scholarship recipients for 2010-2011 are: Candace Fowler, Kaitlynn King, Gillian Mackey, Catherine O'Neill, and John Saunders.

Veronique Laberge (Crudden group) receives a Japanese Coe fellowship to spend three months in Japan doing research.

May 2010

The following students graduated from honours Chemistry with distinction in 2010: Ginger Chen, Stephanie Hofley, Laura Hull, Lisa Kozycz, Jonathan Moir, Paul Ricketts, Chen Sun, Matthew Wong, Emily Labine, Stephen Murphy, Jessica Sonnenberg.

The department welcomes back its alumni during the Queen's Spring Reunion reception on May 30.

Stan Brown receives the 2010 Catalysis Award from the Canadian Institute for Research in Catalysis for his distinguished contributions to the field of catalysis.

Hugh Horton is appointed Associate Dean (Studies) in the Faculty of Arts and Science for a six-year term effective July 1

Natalie Cann is appointed Associate Head for a three-year term effective July 1.

Gregory Jerkiewicz is awarded a grant of \$50,000 from the Nissan Motor Company.

The department holds a reception on May 31 at the 2010 Canadian Society for Chemistry Conference in Toronto, Ontario.

New Funding for International Exchanges



A multidisciplinary team centered at the Department of Chemistry was recently granted \$1.59 million over 6 years to fund an innovative training program aimed at improving the internationalization of Canadian graduate students carrying out research in the area of chiral materials. The CREATE (Collaborative Research and Training Experience) grant, headed by Cathleen Crudden from Chemistry, also includes Chemistry faculty members Natalie Cann, Hugh Horton, Bob Lemieux, Peter Loock, Nick Mosey, Jean-Michel Nunzi and Richard Oleschuk, in addition to Mike Cunningham (Chemical Engineering, cross-appointed to Chemistry) and Kevin Robbie (Physics). These researchers are all targeting different

aspects of chiral materials, which have wide ranging applications, from novel ways to synthesize pharmaceuticals and specialty chemicals to new liquid crystals and memory storage devices.

The main focus of the program is an international exchange that all students supported by the CREATE grant will carry out. Living and working in another country will improve their scientific skills, but will also expand their communication skills and cultural sensitivities. With the growing internationalization of science, business and government, people with increased understanding of other languages and cultures will have a significant competitive edge in the workplace. Initially Japan, Sweden and France will be targeted as

exchange countries in order to provide students with a wide range of scientific, cultural and linguistic experiences.

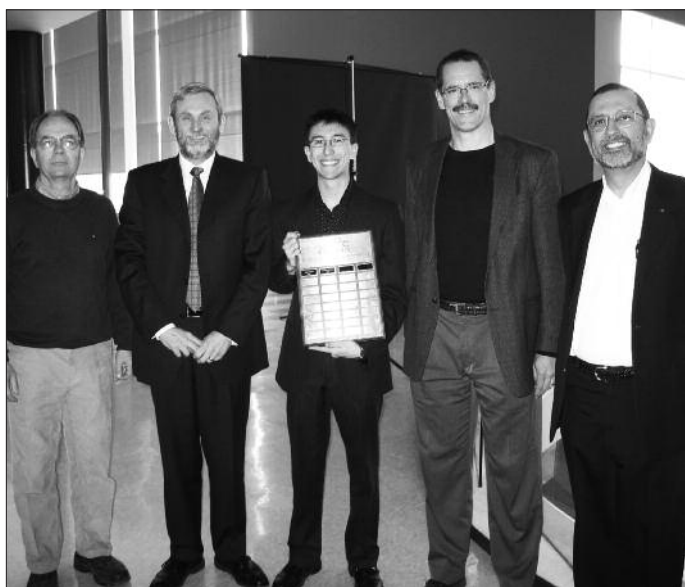
Here at home, CREATE students will participate in specially designed graduate courses in the areas of scientific communication, the ethics of science, entrepreneurial skills and management in science. International experts visiting Canada from our partner institutions will also participate in graduate level courses open to senior undergraduates. Overall, this grant will enable the training of at least 60 students and postdoctoral fellows, and its effects on the Chemistry curriculum at Queen's will be felt long after the funds have been spent.

4th Year Research Projects and QCIC Careers Luncheon

On April 12, students in Engineering Chemistry (Applied Science) and Honours Chemistry (Arts and Science) presented the results of their 4th year research projects; 41 students in total gave oral presentations during this day-long minisymposium. The Sullivan Prize and Smith Prize competitions recognizing outstanding achievements in undergraduate research in Applied Science (CHEM 417) and Arts and Science (CHEM 497), respectively, were adjudicated by two members of the Queen's Chemistry Innovation Council, Dr.

Adi Treasurywala (ArrowCan Partners Inc.) and Dr. Will Rogers (Imperial Oil). The Sullivan Prize competition featured presentations by Andrew Wong, Philip Kwong, Faisal Abdulla and Melissa Dick, with Andrew taking the prize for his project on "Production of Linear Triblock Copolymers Containing a Biorenewable Monomer", which was co-supervised by Mike Cunningham and Robin Hutchinson. The Smith Prize competition featured presentations by Stephen Murphy, Christina Sun, Jonathon Moir and Emily Labine, with Christina taking

the prize for her project on "Enhancing Phosphorescence of Pt(II)-Acetylides with Triarylboron", which was supervised by Suning Wang. The QCIC Career's Luncheon was held in the 4th floor lounge of Chernoff Hall and featured Dr. Will Rogers, Manager of Research, Products and Chemicals Division at Imperial Oil. Will gave an overview of his career and shared with our graduating class his thoughts on career planning and opportunities for chemistry graduates in the chemical industry and elsewhere.



Ralph Whitney, Will Rogers, Andrew Wong, Bob Lemieux, Adi Treasurywala



Adi Treasurywala, Christina Sun, Bob Lemieux, Will Rogers

News from the Department of Advancement

Thank you to each one of you who showed their support this past year to the Department of Chemistry through volunteering, mentoring and/or supporting our students and programs through financial contributions.

Fundraising initiatives

The 1960's Chemistry Scholarship: This Scholarship, which recognizes the best applicant to a MSc or PhD program in the Department of Chemistry, has been formally approved and will be awarded for the first time this upcoming academic year! Our volunteer organizers from the 1960's – Jake Blair and John Latham – have done an excellent job of promoting this special Scholarship and generating support. On-going support is welcomed so we can ensure this important Scholarship can continue to be awarded.

This year, the Department of Chemistry faculty and staff have made a commitment to step up their financial support of the department and the university. Many thanks for your hard work, generosity and leadership.

A Challenge to our alumni

We hope that you will help us to continue, and build upon, the excellent work taking place in the Department of Chemistry by making a gift today. We would be pleased to work with you on directing your gift to a proj-

ect of your choosing.

Please remember that all gifts (including gifts of shares) to Queen's University can be directed to any project of your choice. For more information on supporting the Department of Chemistry, please contact Lisa Sykes at 1-800-267-7837.

If you are interested in directing a bequest to the Department of Chemistry, please contact the Office of Planned Giving by calling 1-800-267-7837 and asking to speak to Faye Ransom. Please know that any communication about estate planning will be held in the strictest of confidence.

Thank you for your ongoing support of the Department of Chemistry!

Patty McHenry

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Faye Ransom

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Seminar Series 2010-2011

We are pleased to announce that the following speakers have been confirmed for our 2009-2010 Seminar Series.

For more information and dates, please visit our website at <http://www.chem.queensu.ca/chemistryN/About/seminarseriesN.asp>

Prof. Mark Green, Polytechnic Institute of New York University, U.S.A.
Prof. Troy Wood, University of Buffalo, U.S.A.
Prof. Tobin Marks, Northwestern University, U.S.A.
Prof. Torsten Hegmann, University of Manitoba
Prof. Francoise Winnik, Université de Montréal
Prof. Daniel Belanger, University of Quebec at Montreal
Prof. Todd Martinez, University of Illinois, U.S.A.
Prof. David Bryce, University of Ottawa
Prof. Davit Zargarian, Université de Montréal
Prof. Vy Dong, University of Toronto.
Prof. George Shimizu, University of Calgary
Prof. Ken Caulton, Indiana University, U.S.A.
Prof. Melanie Sanford, University of Michigan, U.S.A.
Prof. Luis Echegouen, Clemson University, U.S.A.
Prof. Eric Heller, Harvard University, U.S.A.
Prof. Scott Denmark, University of Illinois, U.S.A.
Prof. Geoffrey Coates, Cornell University, U.S.A.
Prof. Dennis Curran, University of Pittsburgh, U.S.A.

The Chemistry Seminar Series is supported by generous donations from GreenCentre Canada and the following individuals: Patty McHenry, Hugh Horton, Ralph Whitney, Robert Lemieux, Jean-Michel Nunzi, and Din Lal.



GreenCentre Canada Celebrates a Year of Milestones

One year after its birth as the world's first green chemistry commercialization centre, GreenCentre Canada has struck oil – and plastic – thanks to a green chemistry research breakthrough brought to GCC for development.

The technology, based on a discovery by Prof. Philip Jessop offers a method for efficiently recovering both the unused motor oil and the plastic from the 150,000 metric tons of used motor oil bottles tossed into landfills every year. Both the oil and the plastics recovered by the process meet specifications for recycling. GCC estimates that, in the U.S. alone, 75 million litres of virgin oil could be salvaged from the shredded bottles, while also diverting the cleaned plastic from landfills for other uses. GCC is now working with two of its industry partners to analyse the economic feasibility of the recovery process.

This project is just one of many milestones being celebrated by GreenCentre Canada.

Launched in March 2009 with \$9.1 million from the Canadian government and \$13.6 million from the Ontario government, GCC has attracted 121 green chemistry technology disclosures from 27 universities and small businesses across Canada, and enlisted both hands-on and financial support by eight industry partners from around the world. The enthusiastic response to GCC by these groups is a reflection of both an acknowledgement by industry of the economic advantages of "going green" and a recognition of the gap in resources, facilities and talent that prevent promising green chemistry innovations from reaching their potential, says Dr. Rui Resendes, Executive Director of GCC.

"From day one, the idea of GreenCentre Canada was embraced by industry and researchers alike, and that pattern of enthusiastic buy-in continues," says Dr. Resendes. "The most common response I've heard is, 'where have you been all my life.'"

Projects accepted into GCC for further development include metal-free hydrogenation catalysts for cleaner, less energy-intensive chemical production, green solvents and surfactants used in broad range of chemical processes, and a green cement additive that significantly increases the strength of concrete. Fifteen technologies have been accepted into the centre to date, with six additional discoveries being funded with Proof-of-Principle grants.

GreenCentre Canada officially opens its 10,000-square-foot commercialization facilities in Queen's University's Innovation Park on August 19. For more details, see <http://www.greencentrecanada.com/>

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Canada** 
changing chemistry, changing the world