

Catalysis Division

2014-2016 Term Report

June, 2016

www.catalysisdivisions.ca

No. 1

Division Executive Members:

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Representatives to IACS:

Josephine Hill and Garry Rempel
Our division is a member of the Chemical Institute of Canada (CIC) and a club of the North American Catalysis Society (NACS)
www.nacatsoc.org



2015 Membership Numbers:

59 Full
55 Student
15 Retired
14 Post-doctoral
143 Members

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Report from the Chair

We have had a busy and productive past two years in the Catalysis Division. I would like to begin my report by thanking all the members of the Executive (see names to the left) for their hard work, wise advice, and new ideas. We have a vibrant Division because of the efforts of these volunteers as well as the participation of our Division members in our activities, including the current Symposium, and nominations for the awards.

The program for the 24th Canadian Symposium is very exciting. I wish to thank our Symposium Chair, R Tom Baker and his Scientific Program Co-chairs, Elena Baranova and Javier Giorgi for organizing and running this meeting. I am very pleased that 31 students have received Student Travel Awards to attend this meeting, with the majority of the funding from the Canadian Catalysis Foundation. In 2018, the Symposium will be in Saskatoon and I thank Hui Wang for agreeing to be the Chair.

We have implemented some changes to our Division Awards. The Cross-Canada Lecture Tour, has been renamed the RB Anderson Award, after the excellent catalysis researcher from McMaster University, and now consists of two presentations at the Symposium rather than a cross-country tour. We are very pleased to welcome Johannes Lercher to this year's Symposium as the 2015 award recipient. The Canadian Catalysis Lectureship Award (CCLA) continues in its same format but is now awarded every other year. Trong-On Do was the 2014 CCLA recipient and I am pleased to announce that Robert Hayes is the 2016 CCLA recipient. The CIC Catalysis Medal has been awarded to Mark Lautens for 2016. Congratulations to all award winners and thank you to the selection committees for executing the difficult task of choosing just one winner for each award.

Our Division has a new website (<http://catalysisdivision.ca/>) on which we have posted news items, award terms of reference, and other documentation, including our Charter that was approved at the last Division Business Meeting. All Executive members have been very involved with suggesting and editing content for this site with Hui Wang leading the project.

We are a club of the North American Catalysis Society and gratefully acknowledge their grant for this Symposium and their funding for Matthew Neurock to attend this meeting through the Burwell Lectureship.

Thank you for the opportunity to Chair the Division over the past two years, and in the words of our Symposium theme, *the best is yet to come...*

Josephine M Hill, Chair
Catalysis Division of the CIC
2014-2016

News during the Term

Professor Robert Hayes of U of A Selected to Receive the 2016 Canadian Catalysis Lectureship Award

Original Post: 20160303 / admin, Last Modified: 20160304 / admin

Prof. R. E. (Bob) Hayes has been selected as the 2016 Canadian Catalysis Lectureship Award recipient. Bob is a Professor of Chemical Engineering at the University of Alberta who has been active in Catalysis since his undergraduate years. Following a B. Eng. earned at the Technical University of Nova Scotia (TUNS), he pursued a PhD. with Professor John Thomas at the University of Bath, UK. He continued his work on catalysis at TUNS as an Assistant Professor, studying the methanation reaction, before moving to the University of Alberta in 1985. Since 1990, he has worked in the area of catalytic combustion in structured reactors, both for the mitigation of fugitive methane emissions and in the development of catalytic converters. His research work has been conducted in collaboration with both industrial and government laboratories. He is the author or co-author of over 100 scientific papers and six textbooks, including the reference work, Introduction to Catalytic Combustion, published in 1997.

Abstract Submission and Registration now open for the 24th Canadian Symposium on Catalysis

Original Post: 20160127 / admin, Last Modified: 20160127 / admin

The 24th Canadian Symposium on Catalysis, to be held from May 8-11, 2016 at the University of Ottawa, will bring together leaders from science and engineering across Canada showcasing advances in heterogeneous, homogeneous and biocatalysis. This year's theme, The Best is Yet to Come, emphasizes the relevance of catalysis in today's society and the view toward the future for academic and industrial research, both fundamental and applied. Plenary lecturers include the 2015 RB Anderson Catalysis Award winner, Prof. Johannes Lercher from TU Munich, Prof. Cathleen Crudden from Queen's University and Prof. Plamen Atanassov from U of New Mexico. Other invited Keynote lecturers include Viola Birss (Calgary), Curtis Berlinguette (UBC), Svetlana Schauermann (Fritz Haber Institute, Berlin), Peter McBreen (Laval) and Jules Thibault (uOttawa) as well as the 2016 CIC Catalysis Award winner Mark Lautens (Toronto) and the ACS Burwell Award winner Matt Neurock (Minnesota). Please consult our website (<http://www.cansympcatal.ca>) for information on technical sessions and application for student support.

Catalysis & Catalytic Reaction Engineering Sessions at 66th Canadian Chemical Engineering Conference

Original Post: 20160108 / admin, Last Modified: 20160108 / admin

The 66th Canadian Chemical Engineering Conference is to be held in Québec City from October 16 to 19, 2016. The theme of the conference is "Sustainability and Prosperity". This year's organizing committee is made up of members from Industry and Université Laval's Department of Chemical Engineering. Abstract Submission opens March 11, 2016. Check out <http://www.csche2016.ca/> for updates.

99th Canadian Society of Chemistry (CSC) conference: Green Production of Fuel and Feedstocks

Original Post: 20160108 / admin, Last Modified: 20160108 / admin

The purpose of the symposium on “Green Production of Fuel and Feedstocks” (Division of Industrial Chemistry) is to showcase advances made in the production of fossil and non-fossil fuels and petrochemical feedstocks that have potential improvements in environmental performance over current practice. Catalysis often plays an important role. We would like to hear ideas ranging from early stage research and concepts right through to projects that are well advanced or even commercialized.

Date: June 5-9, 2016

Location: Halifax, Nova Scotia.

Abstract deadline: February 16, 2016

Organizer: Arno de Klerk (deklerk@ualberta.ca)

For more information on the conference: <http://www.csc2016.ca/>

Passing of Canadian Catalysis Foundation Board Member David Hill

Original Post: 20150321 / admin, Last Modified: 20150321 / admin

David E. Hill, QC, came into the Catalysis Community following the 1988 International Conference on Catalysis. He was instrumental in creating the Canadian Catalysis Foundation; he was the Corporate Secretary, and obtained the letters patent, and drafted the bylaws. He worked as Corporate Secretary from inception through the 2007 meetings of the Board of Directors. Mr. Hill provided sage advice and direction, and helped bring the Foundation to its current standing. The Life Members of the Canadian Catalysis Foundation regret the loss of our friend and colleague.

IJCRE calls for papers for a special issue to honour Professor Serge Kaliaguine of Laval University

Original Post: 20150319 / admin, Last Modified: 20151205 / admin

The International Journal of Chemical Reaction Engineering (IJCRE) plans to publish a special issue to honour Professor Serge Kaliaguine of Laval University. Dr. Serge Kaliaguine is a renowned and prestigious Canadian researcher with major contributions in the areas of catalysis and reaction engineering. The guest editors of this issue are Dr. Benito Serrano of Universidad Autonoma de Zacatecas, Mexico (beniser@prodigy.net.mx) and Dr. Ying Zheng of University of New Brunswick, Canada (yzheng@unb.ca). They informed Canadian Catalysis Division of the Canadian Society for Chemistry that the call for papers is now open until May 31, 2015. All manuscripts for the Special Issue are peer-reviewed before acceptance for publication. For details, please refer to <http://www.degruyter.com/view/j/ijcre> or contact the guest editors directly.

Johannes Lercher selected as the R.B. Anderson Awardee for 2015

Original Post: 20150225 / admin, Last Modified: 20150302 / admin

The research of Prof. Johannes A. Lercher (Technische Universität München and Pacific Northwest National Laboratory) addresses fundamental aspects of catalysis, focusing on understanding elementary steps of catalytic reactions on metals, oxides, and sulfides as well as zeolites. Catalytic targets are the low temperature acid catalyzed activation, functionalization, and transformation of alkanes, the oxidative activation of light alkanes including methane, the hydrogenation and deconstruction of large biogenic and fossil molecules such as lignin and multinuclear aromatic molecules. He has co-authored over 470 publications and is the co-inventor of 17 patents. Lercher's group has pioneered the use of in situ molecular spectroscopy for characterizing surface reactions, using this information to develop novel complex catalysts. He is the current Editor-in-Chief of the Journal of Catalysis and is a member of the Austrian

Academy of Sciences and the Academia European as well as the President of the European Federation of Catalysis Societies.

Professor Lercher will give two lectures at the 24th Canadian Symposium on Catalysis to be held in Ottawa, ON, Canada May 8-11, 2016. The first lecture will be given on the Sunday afternoon before the opening reception. This educational lecture will be aimed towards graduate students and post-doctoral fellows. The second lecture will be one of the plenary talks at the symposium.

Former NRC Catalysis Scientist Dr. Yoshi Amenomiya Passed Away at 90

Original Post: 20141125 / admin, Last Modified: 20141125 / admin

Dr. Yoshi Amenomiya passed away on Saturday November 22, 2014 at the age of 90. Dr. Amenomiya worked in catalysis at the National Research Council of Canada until 1986. He then moved to the University of Ottawa. In 1977, he won the first Catalysis Award jointly with R. Cvetanovic.

The 24th Canadian Symposium on Catalysis to be in Ottawa in 2016

Original Post: 20141018 / admin, Last Modified: 20141125 / admin

The 24th Canadian Symposium on Catalysis (24CSC) will be held in Ottawa, the nation's capital, in May, 2016. The chair of the organizing committee of this conference is Professor Tom Baker of University of Ottawa.

U of A Professors N. Semagina and R. Hayes were Congratulated for a Successful CSC in Edmonton

Original Post: 20141018 / admin, Last Modified: 20141026 / admin

Professor Natalia Semagina and Professor Bob Hayes of University of Alberta, the chair and technical chair of the organizing committee of the 23rd Canadian Symposium on Catalysis, were congratulated for a successful conference in Edmonton. There are 135 attendees in this conference.

New executive committee of the Catalysis Division of the Chemical Institute of Canada for the 2014-2016 term has been formed

Original Post: 20141018 / admin, Last Modified: 20141018 / admin

New executive committee of the Catalysis Division of the Chemical Institute of Canada for the 2014-2016 term has been formed in the Annual General Meeting on Monday, May 12, 2014 in Edmonton. Professor Josephine Hill of University of Calgary is the Chair of the Division. According to the new Charter of the Catalysis Division of CIC, which is approved in the General Meeting in Edmonton, the committee is now consisting of Chair, Vice Chair, Secretary and Treasurer, Past Chair, and 4 to 6 Member-at-Large. Other members of the executive committee can be found in the page of "Office".

Students on Canadian Catalysis

8 Canadian Students Receive Kokes Award at 24th NAM

Original Post: 20150806 / admin, Last Modified: 20150909 / admin

Eight graduate students from Canada received Kokes Awards to attend the 24th NAM (North American Catalysis Meeting) Conference in Pittsburgh, June 14-19, 2015. They are: Sandeep Badoga (University of Saskatchewan), Abhinandan Banerjee (University of Saskatchewan), Pooneh Ghasvareh (University of British Columbia), Hanieh Nassiri (University of Alberta), Junnan Shangguan (University of Toronto), Luis D. Virla (University of Calgary), Thomas E. Wood (University of Toronto), Yali Yao (University of Saskatchewan).

Receivers Talk about the Impact of Kokes Award

Original Post: 20150909 / admin, Last Modified: 20150909 / admin



Talking about the impact of this award on the students, Hanieh Nassiri, one of the award receivers from U of Alberta, speaks to the Division, "NAM conference was a call for me to shake up the way I think, work, and speak, and to make bold moves that would make meaningful changes for me in the workplace. That conference challenged me to think about changing differently and start making it happen immediately. I am sincerely honored and grateful to receive the 2015 Kokes award that

encouraged and enabled me to attend this conference to share knowledge and benefit from meeting honorable scientists in the world. However, I realized that one of the important things is networking which allowed me to see my field from an industry perspective. Staying focused and present at university is important but I also think that branching out of the university bubble is really valuable as it helps you realize what the "real world" is like."



Luis Virla, PhD student of U of Calgary: Receiving the Kokes award was great honor and I am very grateful for being included in such a distinguished group of talented individuals. Kokes awardees are known for being change agents and leaders on catalytic research, and I am very inspired to follow their footsteps. The Kokes award enhanced my experience during NAM24 conference, not only by granting a very generous support, but also by providing an incredible

networking platform. During the conference I was able to build numerous and strong connections with key players from industry and academia. Attending to NAM24 was a life changing experience. Sharing with others who are also passionate about catalysis and enjoying state-of-the-art lectures, encouraged me to work and push myself towards innovation and creativeness. I invite all students to attend future NAM conferences and apply for the Kokes award competition to have the chance to discover the wonders of catalysis research.

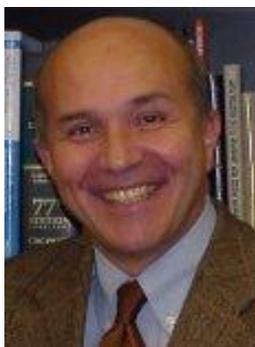


Yali Yao, PhD student of U of Saskatchewan: I am quite proud and grateful to receive the Kokes Travel Award and have an oral presentation in NAM to discuss my recent work with other participants specialized in catalysis. Kokes Travel Award offered us a great experience in NAM conference to exchange ideas with others in catalysis related to the work I am doing and discover novel opportunities and broaden my knowledge through learning from other participants'

presentations and poster exhibitions. It also provides us opportunities to meet new friends and visit the beautiful city—Pittsburgh!

R.B. Anderson Awardee and Canadian Catalysis Lectureship Awardee

Professor Johannes Lercher Selected as the R.B. Anderson Awardee for 2015



The research of Prof. Johannes A. Lercher (Pacific Northwest National Laboratory and Technische Universität München) addresses fundamental aspects of catalysis, focusing on understanding elementary steps of catalytic reactions on metals, oxides, and sulfides as well as zeolites. Catalytic targets are the low temperature acid catalyzed activation, functionalization, and transformation of alkanes, the oxidative activation of light alkanes including methane, the hydrogenation and deconstruction of large biogenic and fossil molecules such as lignin and multinuclear aromatic molecules. He has co-authored over 470 publications and is the co-inventor of 17 patents. Lercher's group has pioneered the use of in situ molecular spectroscopy for characterizing surface reactions, using this information to develop novel complex catalysts. He is the current Editor-in-Chief of the Journal of Catalysis and is a member of the Austrian Academy of Sciences and the Academia European as well as the President of the European Federation of Catalysis Societies.

Professor Lercher has given two lectures at the 24th Canadian Symposium on Catalysis in Ottawa. The titles of his talks are "Acid-base catalysis in constraints – A general principle to enhance catalytic rates?" and "Understanding and controlling bifunctional catalysis in zeolites".

Professor Robert Hayes of U of A Selected to Receive the 2016 Canadian Catalysis Lectureship Award



Prof. R. E. (Bob) Hayes has been selected as the 2016 Canadian Catalysis Lectureship Award recipient. Bob is a Professor of Chemical Engineering at the University of Alberta who has been active in Catalysis since his undergraduate years. Following a B. Eng. earned at the Technical University of Nova Scotia (TUNS), he pursued a PhD. with Professor John Thomas at the University of Bath, UK. He continued his work on catalysis at TUNS as an Assistant Professor, studying the methanation reaction, before moving to the University of Alberta in 1985. Since 1990, he has worked in the area of catalytic combustion in structured reactors, both for the mitigation of fugitive methane emissions and in the development of catalytic converters. His research work has been conducted in collaboration with both industrial and government laboratories. He is the author or co-author of over 100 scientific papers and six textbooks, including the reference work, Introduction to Catalytic Combustion, published in 1997.

Professor Hayes will tour several Canadian universities and institutions and give lectures in 2016.

Professor Trong-On Do of Laval U Selected to Receive the 2014 Canadian Catalysis Lectureship Award

Professor Trong-On Do has been selected as the 2014 Canadian Catalysis Lectureship Award recipient. Trong-On received a BSc in Chemical Engineering at National University of Science and Technology of

Vietnam, an MSc in Materials and Catalysis and a PhD in Heterogeneous Catalysis at the University of P. and M. Curie (Paris 6, France). After a period at Brunel University (UK), and the French Catalysis Institute (Villeurbanne, France), he moved to Laval University, Canada in 1990. He then spent two years (1997-1999) in Fujishima/Hashimoto' group at Tokyo University as senior STA fellow of Japan before re-joining Laval University as associate researcher and then professor associated with Serge Kaliaguine' NSERC Industrial chair (2003-2008) in Catalysts, Adsorbents and Membranes. He was promoted to the rank of Full Professor in 2012. During his more than 25 year career, Trong-On has successfully performed a number of research projects including zeolites, metal-organic-frameworks, mesostructured materials, bimetallic catalysts and metal/metal oxide nanoparticles. He made outstanding contributions in many important areas of nanomaterials and heterogeneous catalysis, such as liquid phase selective oxidation on framework modified zeolites (TS-1) and Co, W metal oxide clusters supported on mesoporous alumina; gas phase selective catalytic reduction of NO_x (namely SCR-NO_x) on Cu-Ag/ γ -Al₂O₃ nanocomposites and catalytic CO oxidation over Cu/Ce nanocomposites etc. Recently, he became a leading figure in the synthesis and photocatalytic applications of several new types of nanocomposite materials for water splitting to hydrogen and reduction of CO₂ with vapor water to valuable fuels under sunlight. As a result, I have published over 100 papers in refereed journals, 10 invited review articles and chapters, 66 conference abstracts, and hold 5 international patents.

Executive Committee of the Division for 2014-16 Term



Josephine M. Hill

Chair

Email address: jhill@ucalgary.ca

Josephine is the Canada Research Chair in Hydrogen and Catalysis in the Department of Chemical & Petroleum Engineering, Schulich School of Engineering, University of Calgary. Her research focuses on catalysts for hydrotreating, gasification and the development of catalysts and adsorbents from petroleum coke and biomass.



Tom Baker

Vice Chair

Email address: rbaker@uottawa.ca

Tom joined the Chemistry Department at the University of Ottawa in 2008 as Tier 1 Canada Research Chair in Catalysis Science for Energy Applications and Director of the Centre for Catalysis Research and Innovation. His research interests include applications of homogeneous and supported molecular catalysts to hydrogen storage, biomass conversion, tandem processes using alkanes, and “green routes” to fluorocarbons.



Garry L. Rempel

Past-Chair

Email address: grempel@uwaterloo.ca

Garry is a professor in the Department of Chemical Engineering, University of Waterloo and holds the Lanxess Inc./NSERC Industrial Research Chair in Advanced Rubber Technology. His research areas include catalysis, polymer science, environmental and pollution control.



Ying Zheng

Secretary/Treasurer

Email address: yzheng@unb.ca

Ying is a professor and Tier 2 Canada Research Chair in Chemical Process and Catalysis at the Department of Chemical Engineering, University of New Brunswick. Her research group involves development of new catalysts and chemical processes for cleaner fuels and biofuels.

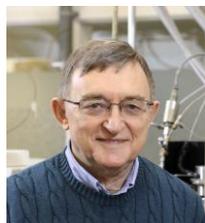


Ya-Huei (Cathy) Chin

Member-at-Large

Email address: cathy.chin@utoronto.ca

Cathy is an Assistant Professor of Chemical Engineering and Applied Chemistry at the University of Toronto. Her research focuses on understanding catalytic events occurred at solid surfaces during the production of fuels, chemicals, and value-added products. The strategies involve synthesizing materials with purpose-built structures and compositions and applies combined methods of kinetics, spectroscopy, microkinetic modeling, and isotopic analysis to probe their dynamics and kinetic consequences in chemical reactions under conditions relevant to industrial practice.



Serge Kaliaguine
Member-at-Large

Email address: serge.kaliaguine@gch.ulaval.ca

Serge is a Professor of Chemical Engineering at Université Laval. He held an NSERC Industrial Chair entitled “Industrial Nanomaterials: Catalysts, Adsorbents and Membranes”. Serge is a former Catalysis Division Chair (1975) and the organizer of three Canadian Catalysis Symposia. His research subjects comprise catalyst development for biofuels and green chemistry, gas phase separation by mixed matrix membranes as well as core/shell materials for a variety of applications.



Natalia Semagina
Member-at-Large

Email address: semagina@ualberta.ca

Natalia is an Assistant Professor at the Department of Chemical and Materials Engineering at the University of Alberta. Her group develops advanced catalytic materials for applications in energy sector, environmental care and fine chemicals synthesis.

Cécile Siewe (Photo not available)

Member-at-Large

Email address: cecile.siewe@shell.com

Cécile obtained a PhD in Chemical Engineering from Imperial College, University of London. She subsequently did Post-Doctoral work with BP Research in England, and the universities of Waterloo and Calgary, in Canada. She also obtained an MBA from the University of Calgary. She worked with the Scientific Research & Experimental Development Program of the Canada Revenue Agency, before joining Shell in 2005, where she is currently the Manager for Upgrading Technology Development.



Hui Wang
Member-at-Large

Email address: hui.wang@usask.ca

Hui is currently an Associate Professor in the Department of Chemical and Biological Engineering at the University of Saskatchewan. His research interests are heterogeneous catalysts development, catalyst and catalytic reaction study using synchrotron X-ray absorption spectroscopy, chemical reaction engineering and separation/adsorption processes

**25th Canadian Symposium on Catalysis: Catalysis: Shining brightest Light on
Catalysis**
Saskatoon, Saskatchewan, May 8-11, 2018

Professor Hui Wang of University of Saskatchewan will chair the 25th Canadian symposium on Catalysis to be held from May 8 to 11, 2018 in Saskatoon. Professor Rob Scott of the same university will be the technical chair of the symposium. The organizing committee also includes Professor Ajay Dalai (Treasurer and fundraiser), Dr. Yongfeng Hu (Coordinator and facilitator), and Professor Lifeng Zhang (Communicant and webmaster).



25th Canadian Symposium on Catalysis, May 8-11, 2018
Saskatoon, Saskatchewan

“Shining Brightest Light on Catalysis”

You are cordially invited to join us in Saskatoon, Saskatchewan, the home of the brightest light in Canada and the University of Saskatchewan, for the 25th Canadian Symposium on Catalysis in May 2018. The Symposium will promote the research and showcase the achievements in use of synchrotron technology in catalyst characterization and in situ studies of catalytic reactions with a theme “Shining Brightest Light on Catalysis.”

Travel awards for the students will be available from the Canadian Catalysis Foundation.

Looking forward to seeing you in Saskatchewan, the Land of Living Sky

Technical Program Chair: Robert Scott, University of Saskatchewan
Conference Chair: Hui Wang, University of Saskatchewan