1) **Annual Report 2014-2015**

1. **Background**

   The Center for self-assembled chemical structures (CSACS) receives funding from FQRNT under the Regroupement Stratégique Programme which began as of January 2002 and ran for 6 years. CSACS became an official McGill Centre in February 2003. Renewal funding of $412,500 p.a. for 6 years from the FQRNT Regroupement Stratégique Programme was awarded to CSACS in April, 2008. For the CSACS budget for May 2015-April 2016 has been reduced by about 20%, $330,000 p.a. CSACS was provided by the FQRNT one year extension giving a 'bye' for last year's competition.

   The Centre governance involves three groups: the Governing Board, the International Advisory Committee (IAC), and the Research Activities Committee (RAC). The membership of these Committees (Appendix 1) is as prescribed by the McGill Centre regulations and the guidelines set out by FQRNT.

   **Renewal plans:** In April 2014, CSACS was contacted by FQRNT to give us one year extension and consequently to discuss a possible merge with another material centre. Since April 2014, CSACS already met with CQMF (Centre Québécois sur les matériaux fonctionnels) three times and will keep the discussion going to facilitate the period of transition.

   The complete set of documents related to the governance and by-laws of the Centre are appended to the 2014-2015 Annual Report (Appendix 2).

   **Director:** According to the McGill rules for Centres, the member appointed as Director can serve a maximum of two 3 year terms. Since September 1, 2009, Prof. Theo van de Ven, Department of Chemistry, McGill, is the new Director of CSACS. Due to one year extension, Prof. van de Ven will stay as the CSACS director.

   The complete list of CSACS activities over the last 13 years can be found on the Centre website, www.csacs.mcgill.ca. A monthly bulletin is published by the coordinator, Petr Fiurasek, to provide information about upcoming and ongoing activities, recent publications and awards. In addition to being distributed by e-mail, the bulletin can be downloaded from the centre website.

   **Centre membership and board meeting:**

   CSACS currently has 37 full, 3 associate members from 5 Quebec universities. The CSACS Board meeting will be schedule for early September.

2. Scientific Activities sponsored by CSACS

a. Workshops

<table>
<thead>
<tr>
<th>Title</th>
<th>Speakers/Affiliation</th>
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| Particle characterization| Amer Ebied / Malvern  
Attendance: 30 (June 18, 2014 )                                                          |
| Photocatalysis         | P. Calza, M. Sarro and M.C. Paganini, U. Torino, Z. Mi and M.G. Kibria, McGill  
Attendance: 50 (July 18, 2014)                                                           |
| UV-Vis/NIR             | Jean-Louis Cabral, Agilent  
Attendance: 20 (March 18, 2015)                                                          |

b. CSACS lecture series 2014-2015

Here are the 4 speakers who gave lectures at 4 of the participating universities. In addition, CSACS publicized other departmental speakers whose research was of strong interest to its members. The four speakers and the universities where they lectured are listed below:

Prof. Takuzo **Aida**, Tokyo U., Japan  
*Advanced Molecular Design of Functional Soft Materials*  
UdeM/McGill/Sherbrooke (Sept. 8/9/10, 2014)

Prof. Paulo **Samori** U. of Strasbourg, France.  
*Taming complexity in dynamic molecular materials: tailoring low dimensional multifunctional nanostructures*  
McGill /UdeM/INRS (March 24/25/26, 2015)

Prof. Stuart **Rowan** case Western Reserve U. Cleveland, OH.  
*Structurally Dynamic Polymers as Stimuli-Responsive Materials*  
McGill /UdeM (April 7/8, 2015)

Prof. John **Reynolds**, Georgia Tech., Atlanta, GA  
*Color in Conjugated Polymers: Electrochromism and Photovoltaics*  
McGill/UdeM (April 28/29, 2015)

The CSACS lecture series was coordinated by Louis Cuccia (Concordia U.) as the chair of the Education & colloquia committee.

Pour plus de détails visitez  
For more details visit us at  
www.csacs.mcgill.ca

c. CSACS Annual Meetings

i) 2014 Annual Meeting, McGill, New Residence, May 8 (Thursday)

Five keynote speakers and one CSACS student were sharing the stage at the 12th annual self-assembled materials conference. An extended poster session also took place. The 2014 annual meeting was organized by Louis Cucccia, Dima Perepichka, Will Skene, Rolf Schmidt and Petr Fiurasek. Over 200 members and visitors attended and students presented 46 posters.

The invited speakers were:

Wais Hosseini (University of Strasbourg, Institut Le Bel, 45 min)
Carsten Busse (University of Cologne, 30 min)
Paul van Loosdrecht (University of Cologne, 30 min)
Mitch Winnik (University of Toronto, 45 min)
Klas Lindfors (University of Cologne, 30 min)

and the best paper winner talk (15 min) : Thomas Edwardson (Sleiman).

ii) 2015 Annual Meeting, McGill, New Residence, May 5 (Tuesday)

This year's annual meeting is organized by Louis Cucccia, Dima Perepichka, Will Skene, Rolf Schmidt and Petr Fiurasek.

The invited speakers are:

Zhenan Bao, Stanford University
Supramolecular Chemistry in Electronic Materials

Jean-François Lutz, Institut Charles Sadron
Unnatural Information-containing Macromolecules

Joachim Spatz, Heidelberg University/Max Planck Society
Bio-Molecular and Cellular Assemblies at Interfaces

Benoît Marsan, UQAM/CQMF
Nanosized semiconducting materials for photovoltaic cells

Hayden Black (Perepichka), CSACS paper award

Also for the first time, a “3 min thesis” competition is organized where 10 graduate students will present their research in 180 seconds.

d. CSACS Student Symposium, Université de Montréal, Sept. 8-14.

The 10th CSACS Student Symposium, held at the University of Montréal, was attended by over 100 students. Eleven 20 minutes talks and 35 posters were presented. The keynote speaker was Professor Takuzo Aida from department of chemistry and biotechnology, school of engineering, the University of Tokyo Riken center for emergent matter science. The conference was organized by André Besette (U. of M., co-chair). Amani Hariri (co-chair), Nicole Avakyan, Katherine Bujold, Yasser Gidi, Serena Bayram and Christina Calver, (all from McGill). Also by Rolf Schmidt from Concordia and by Damien Habault from Sherbrooke U. and by the CSACS coordinator. The 2014 speakers and the lecture titles of the 2014 symposium are listed below. Katherine Bujold from Sleiman lab, McGill, and Élodie Rousset from Hanan lab has received 2nd and 1st best talk, respectively. Anne-Catherine Bédard and Shawn Parisien-Colette, both from Collins lab (U. of M.), has received best and second poster price respectively. Special reception was organized to highlight the 10th anniversary.

Oleksandr Bushuyev (McGill), Photomechanical Azobenzene Crystals: Mechanistic Insights into Their Transformations
Lucie Giraud (Montréal), Adhesion and Friction Between Supported Core Shell pH Sensitive Polymeric Nanoparticles
Frédéric Byette (Montréal), Self-Assembled pH-Responsive Films Prepared from Mussel Anchoring Threads
Sirine Bayram (McGill), Short Ligands Induce Chained Self-Assemblies and Plasmon Coupling in Silver Nanoparticles
Prof. Aida Advanced Molecular Design of Functional Soft Materials
Abbas Ghanbari (Montréal), Poly(2-hydroxybutanoic acid) Crystallization
Hu Zhu (Montréal), Mixed Solvent Induced Morphology Evolution in Dip-Coated PS-P4VP Thin Films
Ghulam Jalani (McGill), Regeneration of cartilage and bone using hydrogels/upconverting nanoparticles hybrid materials
Katherine Bujold (McGill), Development of Sequence-Responsive DNA Cages for the Selective Release of Oligonucleotide Therapeutics
Marziye Mirbagheri (McGill), Geometrical dependency of moisture transport rate in porous media
Élodie Rousset (Montréal), Ruthenium (II) quaterpyridine complexes and polynuclear assemblies for photocatalysed hydrogen production
Mohamed Amine Mezour (McGill), Directing the Assembly of Gold Nanoparticles with Two-Dimensional Molecular Networks

e. CSACS Scientists-in-Residence

Prof. Mark Cronin-Golomb, Department of Biomedical Engineering at Tufts University Boston, visited CSACS labs during his sabbatical in 2013-2014. His one year stay started in September 2013 and continued until the end of August 2014. He was hosted by Prof. Barrett. ($10,000.00 was approved by RAC).

Vicki Meli, former CSACS member from Lennox lab, and now an associate professor at Mount Allison University, New Brunswick, was hosted in Prof. DeWolf laboratory for a period of two months (October - November 2014). $1,890 was reimbursed for her trip.

f. FRQNT Scientists-in-Residence program

Dirk G. Kurth, from Julius-Maximilians-University in Würzburg (Germany), is hosted in Prof. Hanan laboratory for a period of five months (March 1, - July 31, 2015). ($12,500.00 was approved FRQNT).

g. CSACS Summer Students

In 2005, CSACS/CRMAA initiated a new program to support 5-7 undergraduate summer students ($4K per student) to work on joint research projects between Centre members. The goals of the program are to expose undergraduate research students to CSACS research as well as to promote contacts between research groups. Interuniversity projects are encouraged. This year we have received a total of 10 applications. The students selected for the 2015 program are listed below:

1. Briony Lago (McMaster) Cosa/Blum
Conjugated polyelectrolyte lipid interactions explored at the single molecule level

2. Tiffany Jeen (Saskatchewan) Skene/Giasson
Stimuli responsive brushes prepared by controlled polymerization on transparent surfaces

3. Farhad Khan (McGill) Sleiman/Barrett
The investigation of polycationic polymer coated DNA nanoparticles for gene silencing

4. Lya Fontaine (INSA Toulouse) Dory/Zhao
Synthesis and study of new photochromic compounds as optical modulators

5. Farah Hadji (UdeM) Bazuin/Pellerin
Photocontrol of block copolymer self-assembly in dip-coated films

6. Xue Bin (Concordia) Cuccia/Hanan
Exploring Conglomerate Crystal Sponges

h. Interuniversity Scholarship Supplements (5000$ each)
Ghulam Jalani Cerruti (McGill)/Vetrone (INRS), Injectable hydrogels/upconversion nanoparticles hybrids for tissue engineering, tracking and on-demand drug delivery (renewal for 2nd year)

Abdullah Khan DeWolf (Concordia)/Badia (U. de Montréal), Exploring the Fate and Biophysical Effects of Nanoparticles in Pulmonary Systems

i. Stage International FQRNT
The international internships of the Fonds Nature et Technologies aim to foster the international mobility of Master’s and PhD students whose research activities are part of the scientific program of a strategic cluster. We have the pleasure to inform you that two other scholarships for the international internship (2014-15 period) were awarded:

2. Serene Bayram (Blum) February-March 2015, Klas Lindfors, University of Cologne (Germany)

FQRNT announced that there will be no completion for this year for “Stage International” as well as for the “FRQNT Scientists-in-Residence” program.

j. CSACS Best Paper award
Four nominated publications were received (see below). The Educational colloquium committee decided to forward all four papers for the final ranking which was done by the international advisory committee. At the end Perepichka article (Angew.Chem.Int.Ed.) was awarded the prize.


iii) Bruce Lennox, Dima Perepichka, McGill University, ACS Nano, Directing the Assembly of Gold Nanoparticles with Two-Dimensional Molecular Networks.


k. CSACS Industrial Outreach Day

Outreach to Industry and Knowledge. This event organized by the student committee aims mainly to provide first-hand opportunities for CSACS graduate students and post docs to interact with industry researchers; to benefit from the latest research in the field; and to bring our members even closer to the needs of the industrial community.

July 4, 2014 (McGill University, Thomson House)

Khalil Feghali (St-Jean Photochemicals Inc)
Custom manufacturer of specialty chemicals for the microelectronic, printed electronics, organic solar cell and the imaging industries.

Jean-François Wehrung (Former CSACS-Zhao, Coopérative des eaux)
Research and development laboratory in environmental chemistry working in the field of water clean-up.

Eric Landry (Malvern Instruments)
Produces materials and biophysical characterization technology that enables scientists and engineers to understand and control the properties of dispersed systems.

Katerina Krumova (Former CSACS-Cosa, Berg)
Drives innovation from bench to bedside to create a unique translational realm of pharmaceutical development.

l. Translation

On March 2010, Franck Bélanger, of Traduction CORLEO Translation, became the official translator of CSACS monthly bulletins.

Appendix 1
Governance of the Centre for Self-Assembled Chemical Structures (CSACS)

Governing Board
Martin Grant - Chair, Dean of Science, McGill McGill or delegate (Peter Grütter, Associate Dean)
Rima Rozen - Associate Vice Principal Research, McGill
Dominique Berube Director, Research
Theo van de Ven - Director
Antonella Badia - Associate Director
Yue Zhao – Member
Louis Cuccia - Member
Peter MacDonald - IAC representative
Andrea Greschner - student representative
Andrew Kirk- observer/MIAM Director

International Advisory Committee (IAC)
Gregory Lopinski, NRC Ottawa
Peter MacDonald, University of Toronto
Miriam Rafailovitch, SUNY at Stony Brook

Research Activities Committee (RAC)
Theo van de Ven, McGill University (Director)
Antonella Badia , University of Montreal (Associate Director)
Linda Reven, McGill University (Former Director)
Julian Zhu, University of Montreal on sabbatical
Yves Dory, University of Sherbrooke
Louis Cuccia, Concordia University
Amy Blum, McGill University

Industrial Innovation Program (IIP) Committee:
Julian Zhu, University of Montreal (Chair)
Mark Andrews, McGill University

Scholarship Selection Committee:
Yves Dory, University of Sherbrooke (Chair)
Marta Cerruti, McGill University
Christian Pellerin, University of Montreal
Christine DeWolf, Concordia University

Education & Colloquia Committee:
Louis Cuccia, Concordia University (Chair)
Will Skene, University of Montreal
Dmitrii Perepichka, McGill University
Petr Fiurasek, coordinator, McGill University

The student committee:
André Besette, UdeM (co-chair)
Amani Hariri, McGill (co-chair)
Damien Habault, Sherbrooke
Rolf Schmidt, Concordia
Katherine Bujold, McGill
Nicole Avakyan, McGill
Yasser Gidi, McGill
Serena Bayram, McGill
Christina Calver, McGill

Appendix 2
BY-LAWS for the Centre for Self-Assembled Chemical Structures

1. Name:
Centre for Self-Assembled Chemical Structures

2. Location:
Department of Chemistry, McGill University, Pulp & Paper Research Centre, Rm 111.

3. Board:
The overall management of the Centre for Self-Assembled Chemical Structures is the responsibility of the governing Board. The Director of the Centre and the Research Advisory Committee are responsible for the day-to-day management. In the event of an extended absence of the Director, the Associate Director will be in charge of managing the Centre.

4. Membership of Board:
The membership of the governing Board will include the Dean of Science (McGill) to which the Centre reports officially, who will act as Chair of the Board, the Vice-Principal (Research) or delegate (McGill), the Dean of the Faculty of Arts and Science (U. Montreal), the Director and several Full Members of the Centre, one postdoctoral or graduate student and, at least, one person from outside the University, not directly involved in the Centre. This Board will meet at least once annually. The terms of appointment of the Board Members, other than those of the University officials, will normally be for three years.

5. Appointment of Director:
The appointment of the Director and Associate Director of the Centre will be the responsibility of the Board. The Board has the right to open a search for a Director, if the Board deems that this is necessary. The appointments of the Director (and Associate Director) will normally be for three years, with the opportunity of renewal once only. The nominations for Director will be made to the Board by a sub-committee consisting of the Vice-Principal (Research) or delegate as Chair, two active members of the Centre and one member of the Board. The position of Director does not automatically carry teaching release with it. Any decision on teaching release is the prerogative of the head of the home unit of the Director or the Dean of the faculty implicated.

6. Annual Report:
The Director will prepare the Annual Report of the Centre, which will include all financial details of the operation, and will present this Annual Report to the Board for approval. The Annual Report will then be submitted to the Office of the Vice-Principal (Research) for further evaluation. If necessary, the Director may be required to make a presentation to the Office of the Vice-Principal (Research) on the details of the Annual Report and the operation of the Centre.
Regular newsletters to all members play a vital role in internal communications – Center of Self-Assembled Chemical Structures (CSACS) monthly newsletter highlights activities, key messages and information. If you have information to communicate or you would like to receive our bulletins, please contact us via email at csacs.chemistry@mcgill.ca.

**CSACS Bulletin du CRMAA**

**Annual Report (2014-2015) con’t.**

**Appendix 2 con’t**

7. Membership in the Centre for Self-Assembled Chemical Structures:
   There will be five classes of membership in the Centre:
   - Full Member
   - Associate Member
   - Visiting Member
   - Postdoctoral Member
   - Student (Graduate or Undergraduate) Member.
   The ratification of nominations (which must include full curricula vitae and letters of support) for new Full and Associate Members of the Centre is the prerogative of the Board.

8. Research Funding Allocations:
   Recommendations for research funding for any Members of the research Centre will be made by the Director to the Board. Allocations will be based on recommendations from the Research Advisory Committee of the Centre. The composition of the Research Advisory Committee is the responsibility of the Board. Any appeals against the recommendations of the Director and the Research Advisory Committee will be heard by the Board and its decision will be final.

9. Annual General Meeting:
   There will be a General Meeting of all Members of the Centre for Self-Assembled Chemical Structures once a year to discuss the Annual Report. However, only Full Members will be permitted to vote on motions presented.

10. Extraordinary Meeting of Board:
    An Extraordinary Meeting of the Board can be convened if the Chair of the Board has been informed, in writing, of such a request and the letter has been signed by at least 2/3 of the Full Members of the research centre.

11. Research Agreements, Contracts and Grants:
    The Centre does not have the right to enter into grant or contract agreements without the signatures of the appropriate University signing officer.

12. Dissolution of the Research Centre:
    If the Centre no longer satisfies the basic requirements laid down by the University, e.g., insufficient membership, lack of demonstrable research activity, failure to file Annual Reports, or no longer a priority in the strategic plan of the university, the Vice-Principal (Research) can recommend to the Provost and Vice-Principal (Academic) that the Centre be closed.