1) Annual Report 2011-2012

Background: CSACS/CRMAA 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 per year for 6 years from the FQRNT Regroupement Stratégique Programme was awarded to CSACS in April, 2008.

The complete set of documents related to the governance and by-laws of the Centre are appended to the minutes of the 2011-2012 Annual Report (Appendix 2).

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.

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.

Centre Activities: 20011-12

The complete list of CSACS activities over the last 10 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.

CSACS Midterm Review

The midterm application process, which began in June, 2011, consisted of updating the FQRNT database (e-regroupement) along with associated texts (ex. Common CV), followed by a site visit on January 25, 2012. A copy of the renewal application (100 pages), co-written by a team of Centre members, can be obtained upon request from the Director. The report from FQRNT summarizes the format of the site visit, the participants and the method for evaluating of the Center. The performance of CSACS was judged as excellent at all levels and the committee recommended continued funding for 3 more years as planned. The reviewers’ comments have not been received yet.

Centre Membership

Following the mid-term review of FQRNT funding, CSACS currently has 34 full, 4 associate and 2 collaborator members from 5 Quebec universities (Janine Mauzeroll moved from UQAM to McGill). The following 2 researchers were nominated as full members and approved for membership in 2011:

Dr. Marta Cerruti, Department of Mining and Materials Engineering, McGill. At the biointerface lab they strive to understand and control phenomena occurring at the interface between synthetic materials and biological molecules.

Dr. Reghan Hill, Department of Chemical Engineering, McGill. They use a balance of theory, computations, and experiments (e.g., including optical tweezers and electroacoustics) to study problems that fall into the general themes of "soft matter" and "nanotechnology", e.g., nanoparticle gel-electrophoresis, phospholipid membrane diffusion, and nanocomposite molecular packing.

Scientific Activities sponsored by CSACS

a. Course and Workshops

<table>
<thead>
<tr>
<th>Workshops</th>
<th>Date</th>
<th>Speakers/Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICP-OES, GC-MS</td>
<td>Oct. 5, 2011</td>
<td>Chady Stephan, Miles Snow/PE</td>
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<tr>
<td>(Attendance: 15)</td>
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<tr>
<td>CHEM634 (winter 2012): Attendance: 12 registered (Concordia, UdeM, McGill), in addition 5(avg) guests per class.</td>
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<td></td>
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<tr>
<td>Speaker</td>
<td>Subject</td>
<td></td>
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<tr>
<td>Tomislav Friscic</td>
<td>Solid state synthesis of molecular materials</td>
<td></td>
</tr>
<tr>
<td>Amy Blum</td>
<td>Molecular Electronics and SPM</td>
<td></td>
</tr>
<tr>
<td>Bruce Lennox</td>
<td>Self-Assembled Monolayers</td>
<td></td>
</tr>
<tr>
<td>Marta Cerruti</td>
<td>XPS</td>
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<tr>
<td>Pat Kambhampati</td>
<td>Quantum Dots</td>
<td></td>
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<tr>
<td>Andreas Ruediger</td>
<td>Complex oxide materials</td>
<td></td>
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<tr>
<td>Mark Andrews</td>
<td>Photonics materials</td>
<td></td>
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<tr>
<td>Thomas Szkopek</td>
<td>Graphene</td>
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<tr>
<td>Dima Perepichka</td>
<td>Organic Photovoltaics</td>
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<tr>
<td>Janine Mauzeroll</td>
<td>Scanning Electrochemical Microscopy</td>
<td></td>
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<tr>
<td>Hanadi Sleiman</td>
<td>Self-assembly of biomolecules</td>
<td></td>
</tr>
<tr>
<td>Adi Eisenberg</td>
<td>Diblock copolymers</td>
<td></td>
</tr>
</tbody>
</table>

b. CSACS/CRMAA lecture series 2011-2012

Here are the 7 speakers who gave lectures at 5 of the participating universities. In addition, CSACS publicized other departmental speakers whose research was of strong interest to its members. The seven speakers and the universities where they lectured are listed below:

Prof. Will Dichtel, McGill/UdeM  
Bottom-up Synthesis of Structurally Precise 2D and 3D Organic Materials

Prof. Vicki Meli, McGill/Concordia  
Adventures in Interfacial Self-Assembly: from Nanoparticles to LC

Prof. Paul Weiss, McGill/INRS/UdeM  
Designing, Measuring, & Controlling Molecular & Supramolecular Devices

Prof. Sergiy Minko, Sherbrooke/McGill/UdeM  
Stimuli-Responsive Nanostructured Materials: Design and Applications

Prof. Elias Vlieg, Concordia/UdeM  
Chiral purification using crystal growth and grinding

Prof. Michael Drain, UdeM/Sherbrooke  
Commercially Viable Dyes & Self-Organized Films for Photonics Applications

Prof. Walter Richtering, UdeM  
Multi-sensitive microgels: particles with special properties in solution as well as in mickeering emulsions

The CSACS lecture series were coordinated by Louis Cuccia (Concodia U.) as the chair of the Education & colloquia committee (Perepichka, Skene, Fjurasek). For this year again, Rolf Schmidt and Louis Cuccia had set up online request for 2012/2013. Here is the list of suggested speakers;

Daniel Leznoff (Hanan), Dr. Mark Levine (Rey)  
Nasser Mohieddin Abukheir (Rey), Duncan Graham (Masson)  
S. (Thai) Thayumanavan (Zhao), Amar Flood (Hanan)  
J. D. Tovar (Skene), Dwight Seferos (Skene)  
Hideyuki Otsuka (Skene), Mihail Barboiu (Skene)

c. CSACS Annual Meeting

2011 Annual Meeting, McGill, New Residence Hall, May 5, 2011 (Th)
The 2011 Annual meeting was organized by Louis Cucccia, Dima Perepichka, Will Skene, Rolf Schmidt and Petr Fiurasek. 187 members and visitors attended and students presented 47 posters.

The keynote lectures were:
Luis Echegoyen, Buckyballmaracas: exploring the inside and outside of endohedral fullerenes
George Newkome, Supramacromolecular self-assembly via metal coordination
Shan Zou, Direct correlation of structures and nanomechanical properties of supported lipid bilayers
Mohan Srinivasarao, Photonics on Wings: Beetles and Butterflies

2012 Annual Meeting, McGill, New Residence Hall, May 9 and 10 (W & Th)
This year to celebrate the CSACS' 10th anniversary there will be a gala dinner on Wednesday evening and the conference will take over two days, with 8 keynote speakers and 3 former CSACS students. For the first time there will be a student poster competition. This year's annual meeting is organized by Louis Cucccia, Dima Perepichka, Will Skene, Petr Fiurasek and the student committee.

The invited speakers are:
Mark Maclachlan (University of British Columbia)
Jim Wuest (Université de Montréal)
Graeme Day (University of Cambridge)
Bruce Lennox (McGill University, CSACS)
Mario Leclerc (Université de Laval)
Leonard MacGillivray (University of Iowa)
Linda Reven (McGill University, CSACS)
Peter Grutter (McGill University, RQMP)

Former students:
Sasha Ivasenko, Post Doc at CU Leuven, Belgium
Jaclyn Brusso, Assistant Professor at U. of Ottawa
Cecile Malardier-Jugroot, Assistant Professor at RMC of Canada, Kingston.

d. CSACS Student Symposium, McGill University, Sept. 20, 2011.

The 7th CSACS Student Symposium, held at the McCord Museum, was attended by 100 students. Nine 20 minute talks, 2 invited speakers and 30 posters were presented. The conference was organized by Gwen Bazin, Olga Borozenko, Andre Besette and Amine Fourati from U. de M and by Andrea Greschner, Zahid Mahimwalla, George Rizis, Karina Carneiro, Alexis Goulet-Hanssens and Mohid Samad Khan from McGill and by Rolf Schmidt (Concordia U.) and by Jean Francois Wehrung (Sherbrooke U.) and by the CSACS coordinator. This year the students had decided to invite a former CSACS student and an active CSACS member. The 2011 speakers and the lecture titles of the 2011 symposium are listed below. The 2012 student symposium will be held at Sherbrooke on September 18th.

Karina Carneiro (McGill): Synthesis and self-assembly of polymer decorated DNA nanotubes
Carolin Madwar (McGill): Model lipid membranes for Evaluating Specific Cell Responses
Cyrille Lavinge (McGill): Reversible long range network formation in gold nanoparticle – nematic liquid crystal composites
Alireza Shams (McGill): Estimation of viscoelastic properties from chromonics liquid crystals defects
Ori Gidron (FQRNT International student hosted by Perepichka lab): Towards “Green” Electronic Materials: α-Oligofurans as Semiconductors
Dylan T. McLaughlin (Concordia U.) Chrial Crystallization and Chiral Amplification of Dynamically Racemic Molecules
**Antonella Badia** (CSACS member): Electroactive Self-Assembled Monolayers as Switchable Interfaces
**Vicki Meli**, (former CSACS student, Lennox): Adventures in Interfacial Self-Assembly from Nanoparticles to Liquid Crystals
Hongji Zhang (U. of Sherbrooke): A New Optically Triggered and Spatially Controllable Shape-Memory Polymer-gold Nanoparticle Composite
Oliver Boissiere (U. of Sherbrooke): Flower Micelles of Poly(N-isopropylacrylamide) with Azobenzene Moieties Regularly Inserted into the Main Chain
Dehui Han (U. of Sherbrooke): One-Pot Synthesis of Brush Diblock copolymers through Simultaneous ATRP and Click Coupling

e. CSACS Mini Symposia

Feature lectures by CSACS professors on recent research developments. In summer the Mini-Symposium is usually plan so that the visiting scientist can participate.

July 28, 2011 (McGill University)
Klaus Meerholz (CSACS Visiting Scientist), Crosslinkable Semiconductors for Use in Solution-Processed Organic Light-Emitting Diodes (OLED)
Igor Perepichka, UK Fluorene-based oligomers and polymers for light-emitting applications from fused-core structures to non-covalent interactions.

Feb. 14, 2012 (McGill University)
Kevin Wilkinson: Self assembly in environmental systems formation of aggregates and biofilms.
Milan Maric: Catching up to ATRP and RAFT: Recent Progress in Nitroxide Mediated Controlled Radical Polymerization

f. CSACS Scientists-in-Residence

Klaus Meerholz from the University of Cologne. Hosted by Skene.
Tapani Viitala from University of Helsinki. Hosted by Winnik. Rodrigo Palacios from National University of Río Cuarto, Córdoba, Argentina. Hosted by Cosa.
Marco Sangermano from Politecnico di Torino, Italy. Hosted by Andrews.

3 visits are already planned for the summer 2012:
Antonella Bandiera, an assistant professor in Molecular Biology and Biochemistry at Trieste University, Italy, will be here as a visiting scientist with CSACS from June 2012 to August 2012. She will be hosted by Prof. Marta Cerrutti’s lab at McGill University.
Albert Mihranyan, from Nanotechnology and Functional Materials Dept of Engineering Sciences, The Ångström Laboratory Uppsala University, Sweden, will be hosted by Prof. Gray Laboratory for a period of two months starting on or about June 1, 2012 and ending July 31, 2012.
William Jones, from University of Cambridge, Chemistry Department, UK, will be hosted in Prof. Friscic Laboratory for a period of one month starting on or about July 1, 2012 and ending July 31, 2012.

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/CRMAA research as well as to promote contacts between research groups. Interuniversity projects are encouraged. Getting more and more popular every year, this year we have received a total of 12 applications. The students selected for the 2012 program are listed below:

1. Castongay, Catherine (Pellerin/Badia) The preparation and characterization of binary self-assembled monolayers of fatty acids, alcohols and thiols on gold surfaces
2. Skrypnik, Valentyn (Winnik/Badia) Phosphorylcholine-containing chitosan for enhanced differentiation of stem cells
3. Grorenaud, Josué (Bazuin/Pellerin/Badia) IR investigation of H-bonding of octylbenzoic acid with PS-P4VP block copolymers during the formation of monolayer films
4. Dierker Viik, Arden (Perepichka/Blum) Synthesis and investigation of Cross-shaped Molecular Electronic Devices
5. Sanz-Robinson, Jethro (Cerruti/Wilkinson) Effect of charged amino acids on nucleation and growth of hydroxyapatite

h. Encouraging Commercializable Outcomes (ECO) Grants

Purpose: To fund small projects, led by a CSACS principal investigator, which objective is to demonstrate or strengthen proof-of-principle for a CSACS research-based invention. Successful projects are expected to lead to results with strong commercialization potential.

2012 Winners

1. New Organometallic Materials for Photovoltaic Applications. PI: Garry Hanan (U. de Montréal)
2. Hand-held chemical sensors for detection of methotrexate. PI: Jean-François Masson (U. de Montréal)
3. CO2-Switchable Polymeric Surfactants. PI: Yue Zhao (U. de Sherbrooke)
i. CSACS Sponsored Symposia

This Year: CSC 2012 in Calgary
Solar Fuels with Transition Metal Complexes, chair by Hanan: sponsor 500$
Molecular Design of Electronic, Photonic and Photovoltaic Materials, chair by Perepichka: sponsor 500$

Last year CSACS sponsored symposia and other scientific events:
ACS Colloid and Interface Meeting, Montreal, June 19 – 22, 2011, organized by Theo van de Ven. Four of the sessions were chaired by CSACS/CRMAA members (van de Ven, Reven, Kakkar, Lennox). Poster session organized by Petr Fiurasek and Kevin Wilkinson: sponsor $600

Sponsored 7 symposia.
MT1/MS1: Block copolymer Self-Assembly (in honor of Adi Eisenberg); chair: Guojun Liu; 4 sessions – $2500.00
MT2/OR9/BM18: Supramolecular Materials; co-chairs: H. Sleiman, A. Schmitzer;
4 sessions - $500.00
MT3/SS7 or SS4/MS6: Self-Assembly at Surfaces and Interfaces; co-chairs: H.
Eichhorn, D. Perepichka, S. Giasson; 4 sessions; - $500.00
MT4/MS2: Smart Stimuli-Responsive Materials; chair: Yue Zhao; 2 sessions; Monday AM/PM - $500.00
SS2/PT10: Organic Ultrathin Films and Biomimetic Interfaces (C. DeWolf);
3 sessions - $500.00
MS7: Optoelectronic Materials (W. Skene); 5 sessions - $500.00
Metallosupramolecular Chemistry (Garry Hanan) $500.00.

One day Symposium (Sept. 26, 2011) on Advanced Materials and Nanotechnology organized by Rosei. CSACS student registration was pay.

j. Translation
On March 2010, Franck Bélanger, of Traduction CORLEO Translation, became the official translator of CSACS monthly bulletins
**Annual Report (2011-2012) con’t.**

**k. 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.

FRQNT has revised upwards the limit of applications for each strategic cluster. In deed, you can submit up to (5) applications during the period running from April 1st, 2010 to March 31st, 2013.

Two more scholarships are available for CSACS students in 2010-2013. One was already awarded to Ori Gidron from Weizmann Institute of Science (Tel-Aviv, Israel) who worked in Prof. Perepichka lab for two months. 2 applications were awarded for this summer.  

i) Mohamed Amine Mezour (Perepichka/Lennox): will spent 2 months in KU Leuven (Belgium) in the laboratory of Prof. Steven de Feyter.  

ii) Andréanne Bolduc (Skene): will spent 2 months in Klaus Meerholz group, U. of Cologne, Germany.

The next deadline to submit the applications will be September 30th, 2012 where the last two International scholarships will be decided.

**l. FQRNT annual meeting**

On the 8th ed. of the FRQNT Annual Research Day (9 February 2012), the CSACS Director Theo van de Ven presented the work on the Centre for Self-Assembled Chemical Structures.  


Appendix 1

Governance of the Centre for Self-Assembled Chemical Structures

_Governing Board_
Martin Grant - Chair, Dean of Science, McGill or delegate (Peter Grütter, Associate Dean)
Rose Goldstein, Vice Principal, Research, McGill or delegate (Rima Rozen - Associate Vice Principal)
Joseph Hubert - Vice Rector, Research, U. Montreal or delegate (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)
Jean-François Masson, University of Montreal
Yves Dory, University of Sherbrooke
Louis Cuccia, Concordia University
Amy Blum, McGill

_University Industrial Innovation Program (IIP) committee_
Jean-François Masson (chair), member, University of Montreal
Mark Andrews, member, McGill University
Julian Zhu, member, university of Montreal

_CSACS Scholarship selection committee_
Yves Dory (chair), member, Sherbrooke
Marta Cerruti, member, McGill University
Christian Pellerin, member, University of Montreal
Christine DeWolf, member, Concordia

_Education & colloquia committee_
Louis Cuccia (chair), member, Concordia University
Will Skene, member, University of Montreal
Dmitrii Perepichka, member, McGill University
Petr Fiurasek, coordinator, McGill University
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.
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.