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Centre de recherche sur les matériaux auto-assemblés  
Centre for self-assembled chemical structures

Volume 62

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## 1) **Prix du CRMAA du meilleur article CSACS Best Paper Award**

**L'objectif de ce prix** est de reconnaître les contributions des membres du CRMAA dans les domaines de recherche de l'auto-assemblage.

### Un petit résumé :

Les étudiants et/ou les membres du CRMAA devront transmettre leurs articles de candidatures.

Un maximum de 3 articles sera sélectionné par le comité d'éducation et des colloques selon divers critères tels que l'impact et l'originalité.

Les publications sélectionnées seront jugées par le comité consultatif international.

**Prix :** Le prix est constitué d'une plaque, un dîner et une inscription au SCC 2015, au mois de juin. Le prix sera présenté à l'assemblée annuelle du CRMAA.

La date limite de candidature pour des articles publiés en 2014 : **15 fév.**

**The objective of the award** is to recognize the contributions of CSACS members to the research areas of Self-Assembly.

### Quick summary:

Students and/or CSACS members will send their papers for nominations.

Maximum of 10 papers will be selected by the Education & colloquia committee with respect to various criteria such as impact and originality.

Nominated publications will be judged by international advisory committee.

**Prize:** The award will consist of a plaque, lunch and the registration to CSC 15, in June. The award will be presented at the CSACS Annual Meeting.

The deadline for nomination for papers published during 2014: **Feb. 15**



Dr. [Joseph Zasadzinski](#)

## 2) Séminaire/Seminar: Joseph Zasadzinski

**Visit:** McGill (Jan.20)/UdeM(Jan.21)/Concordia (Jan.22)

**Titre:** La viscosité de surface: qu'est-ce que cela nous révèle au sujet de l'ordre et de l'organisation dans les monocouches lipidiques.

**Title:** Surface Viscosity: What it tells us about order and organization in lipid monolayers

### Résumé/Abstract:

We use photolithography to microfabricate ferromagnetic disks 1 micron in height and 20-100 microns in diameter, which contain a thin (100 nm) film of magnetic metal and a thin layer of gold. We can float these disks on a Langmuir trough and apply known torques to oscillate the disks to evaluate the surface viscosity and elasticity of lipid monolayers. As an alternative, we rotate 5 micron long, 300 nm diameter nickel wires in a magnetic field at the air-water interface. The small size of the disks and wires gives us sensitivity to small values of the surface viscosity that were impossible to access with macroscopic probes. We find that a surprising number of monolayers exhibit a Newtonian response with a constant surface viscosity over a range of surface pressures. We can identify second order phase transitions difficult to find with isotherms or X-ray diffraction methods. The composition dependence of surface viscosity is also surprising. Adding small fractions of cholesterol decreases the interfacial viscosity of dipalmitoylphosphatidylcholine (DPPC) monolayers by an order of magnitude per wt%. Grazing incidence X-ray diffraction shows that cholesterol at these small fractions does not mix ideally with DPPC, but rather induces nano-phase separated structures of an ordered, primarily DPPC phase bordered by a line-active, disordered, mixed DPPC-cholesterol phase. We propose that the free area in the classic Cohen and Turnbull model of viscosity is inversely proportional to the number of molecules in the coherence area, or product of the two coherence lengths. Cholesterol significantly reduces the coherence area of the crystals as well as the interfacial viscosity. Using this free area collapses the surface viscosity data for all surface pressures and cholesterol fractions to a universal logarithmic relation. The extent of molecular coherence appears to be a fundamental factor in determining surface viscosity in ordered monolayers.

[Source](#)

## 3) Stages d'été pour les étudiants du baccalauréat Summer undergraduate research scholarships

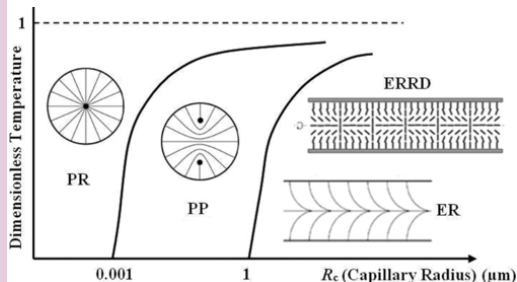
**Un petit rappel** aux membres concernant le programme d'été du CRMAA. Les étudiants de premier cycle ont jusqu'au 15 février pour soumettre leur proposition de projet. Surtout, n'hésitez pas à en faire l'annonce dans vos classes. Notez que le programme d'été du CRMAA est également admissible pour les étudiants étrangers.

**A small reminder** to members concerning the CSACS summer program. The undergraduate students have until February 15<sup>th</sup> to submit their project proposal. Above all do not hesitate to advertise it in your classes. Note that the CSACS summer program is also eligible for foreign students.

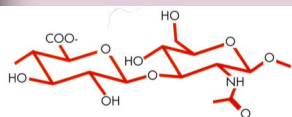
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[www.csacs.mcgill.ca](http://www.csacs.mcgill.ca)

## 4) Publications

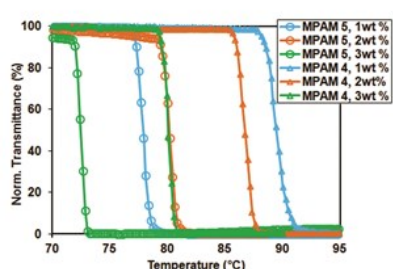


Alireza Shams, Xuxia Yao, Jung Ok Park, Mohan Srinivasarao, and Alejandro **Rey**. [Theoretical predictions of disclination loop growth for nematic liquid crystals under capillary confinement](#), *Phys. Rev. E* 90, 042501.

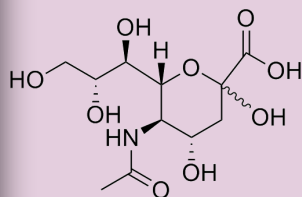


Hyaluronic acid

Borke Tina; Tenhu Heikki; Hietala Sami; **Winnik** Françoise. [Optimized triazine-mediated amidation for efficient and controlled functionalization of hyaluronic acid](#), *Carbohydrate polymers* Volume116 Pages42-50.

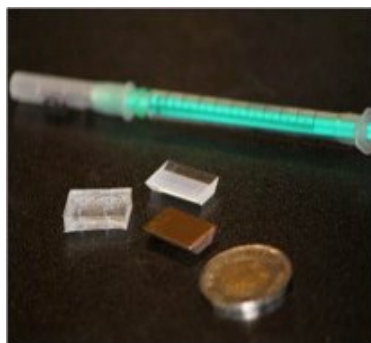


Savelyeva, Xeniya; Li, Lucia; **Maric**, Milan. [Using controlled radical polymerization to confirm the lower critical solution temperature of an N-\(alkoxyalkyl\) acrylamide polymer in aqueous solution](#), *Journal of Polymer Science, Part A: Polymer Chemistry* Vol.53 Issue1 pp59-67.

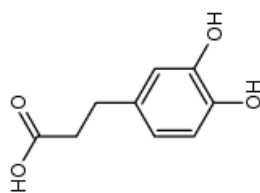


Sialic acid

Veerapandian, Murugan; **Zhu**, X. X.; **Giasson**, Suzanne. [Chitosan-modified silver@ruthenium hybrid nanoparticles: evaluation of physico-chemical properties and bio-affinity with sialic acid](#), *J. Mater. Chem. B*, 2015, Advance Article.



Zhao Sandy Shuo; Bukar Natalia; Pelechacz Daniel; Toulouse Jacynthe; Pelletier Joelle; Robitaille Robert; **Masson** Jean-Francois. [Miniature multi-channel SPR instrument for methotrexate monitoring in clinical samples](#), *Biosensors & bioelectronics* Vol. 64 pp 664-70



Hydrocaffeic acid

Soliman, Ghareb; Zhang, Yu Ling; Merle, Geraldine; **Cerruti**, Marta; Baralet, Jake. [Hydrocaffeic acid-chitosan nanoparticles with enhanced stability, mucoadhesion and permeation properties](#), *European Journal of Pharmaceutics and Biopharmaceutics* Vol.88, Issue 3, pp 1026-1037.

**La parution** de bulletins réguliers à tous les membres joue un rôle essentiel dans les communications internes – le bulletin mensuel du Centre de recherche sur les matériaux auto-assemblés (CRMAA) souligne les activités du Centre, des messages clés et de l'information. Si vous avez des informations à communiquer ou si vous souhaitez recevoir nos bulletins, s'il vous plaît contactez-nous par courriel à [csacs.chemistry@mcgill.ca](mailto:csacs.chemistry@mcgill.ca)

**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](mailto:csacs.chemistry@mcgill.ca)

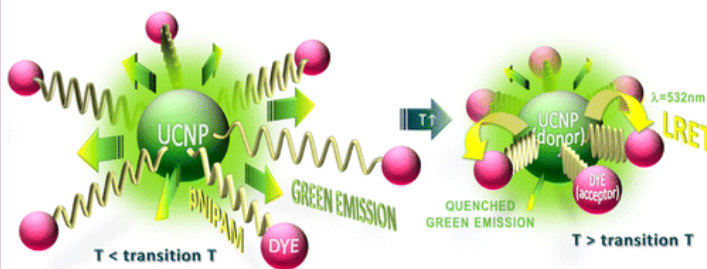
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## 4) Publications con't

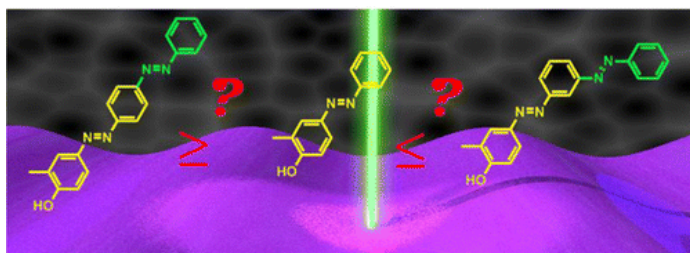


[Candidate for Nanothermometry](#), *Chem. Mater.*, Article ASAP.

Jaana Vapaavuori, Alexis Goulet-Hanssens, Ismo Heikkinen, Christopher Barrett and Arri Priimagi.

[Are Two Azo Groups Better than One? Investigating the](#)

[Photoresponse of Polymer-Bisazobenzene Complexes](#), *Chem. Mater.*, 2014.



## 5) Prix Tomlinson Award: Tomislav Frišćić

**Le Professeur** Tomislav Frišćić a reçu le Prix des sciences Tomlinson de cette année (dans la catégorie professeur adjoint). Ces prix ont été créés en l'honneur des collaborateurs interdisciplinaires, Rutherford et Soddy, grâce à la généreuse fondation d'un philanthrope visionnaire, le Dr Richard Tomlinson. Au cours des trois prochaines années, le Prof. Tomislav Frišćić va travailler avec son équipe sur un projet portant sur les « matériaux moléculaires pour la conversion de la lumière et de la chaleur en travail mécanique ». Félicitations, Tomislav!

Source: [McGill News](#)

**Professor** Tomislav Frišćić was awarded this year's Tomlinson Science Award (Assistant Professor Category). These awards have been established in honor of the interdisciplinary collaborators Rutherford and Soddy, through the generous endowment of a visionary philanthropist, Dr. Richard Tomlinson. In the next three years, he will be working with his team on a project dealing with "Molecular materials for conversion of light and heat into mechanical work". Congratulations, Tomislav!

Source: [McGill News](#)