



# FCSE - 2017

CALL FOR PAPERS

[www.fcse-montreal.ca](http://www.fcse-montreal.ca)

8<sup>th</sup> Symposium on

## FUNCTIONAL COATINGS AND SURFACE ENGINEERING

Organized by

**RQMP** - Regroupement québécois sur les matériaux de pointe and

the St. Lawrence Chapter of the **AVS** Science and Technology of Materials, Interfaces and Processing,

in collaboration with **SVC** - Society of Vacuum Coaters

and hosted by Polytechnique Montréal and Université de Montréal

### SYMPOSIUM TOPICS

- Thin films with tailored optical, mechanical, tribological, electrical, thermal and other functional properties
- Smart coating materials and film systems
- Vacuum and non-vacuum deposition processes, process control and diagnostics
- Plasma processes and plasma-surface interactions
- Thin film systems for passive and active optical filters and waveguides
- Protective tribological coatings with enhanced wear, scratch, abrasion, erosion and corrosion resistance, hydro- and icephobicity and other functionalities
- Characterization methods: microstructure and functional properties
- Modeling and predictive tools for processes and coating system performance
- Thin film materials and systems for optical, optoelectronic, aerospace, outer-space, energy-control, biomedical, micro-system, sensor, energy and other applications
- Surface and interface engineering approaches for the control of adhesion, stress and environmental stability

**MONTREAL  
QUEBEC  
CANADA**

**JUNE 4-7  
2017**

### PROGRAM AND SCHEDULE

**Short courses (full day) – Sunday, June 4, 2017**

*Material science with J.E. Greene*

*Plasma processing of materials with A. Anders*

**Symposium technical program – Monday, June 5, and Tuesday, June 6, 2017**

Invited lectures and contributed oral presentations - Poster presentations - Awards for the best posters -

Table-top exhibit by manufacturers and vendors - Visit of research facilities - Symposium reception and social networking event

**Hands-on workshops – full day – Wednesday, June 7, 2017**

*"Mechanical properties of films and coatings"* with Hysitron

*"Optical characterization and reverse engineering - Spectroscopic ellipsometry"* with J.A. Woollam Co.

*"Tribological properties of surface engineered materials"* with Anton Paar

POLYTECHNIQUE  
MONTRÉAL



WORLD-CLASS  
ENGINEERING

### ORGANIZERS OF THE FCSE-2017 SYMPOSIUM

MEETING CHAIRS

Ludvik Martinu and Jolanta E. Klemberg-Sapieha  
Department of Engineering Physics, Polytechnique Montréal

MEMBERS OF THE  
ORGANIZING COMMITTEE

B. Baloukas, M. Koshigan, M. Laberge, J. Lengaigne,  
J. Qian, J. Sanchez, T. Schmitt, O. Zabeida

RQMP CHAIRS

D. Danovitch, P. Grutter, M. Hilke, L. Martinu, F. Schiettekatte, L. Taillefer ([www.rqmp.ca](http://www.rqmp.ca))

Université   
de Montréal  
**RQMP**

## DATES AND DEADLINES

			Pre-deadline	Post-deadline	Prices in US\$
<b>Technical program</b> June 5 & 6	Students	With conference dinner and social event	150\$	180\$	
		Without conference dinner and social event	120\$	140\$	
	Regular participants	With conference dinner and social event	300\$	330\$	
		Without conference dinner and social event	260\$	290\$	
<b>Short course</b> June 4	Students		130\$	150\$	
	Regular participants		420\$	450\$	
<b>Workshop</b> June 7	Students		130\$	150\$	
	Regular participants		400\$	430\$	
<b>Exhibitors</b> June 5 & 6	One table, one representative	per table	500\$	550\$	
			for special arrangements, please contact the organizers		

**Registration fee includes:** book of abstracts, documentation, refreshments & lunches

Submission of Abstracts for oral and poster presentations

**February 17, 2017**

Registration deadline for all activities

**May 8, 2017**

## PRELIMINARY LIST OF INVITED SPEAKERS

**Ahmet T. Alpas, University of Windsor, ON, Canada**

"Carbon-based coatings for industrial applications"

**Andre Anders, Lawrence Livermore Laboratory, Berkeley, CA, USA**

"Non-evaporative getter and other coatings for applications in ultrahigh vacuum"

**Ladislav Bardos, Uppsala University, Sweden**

"Non-conventional plasmas for reduced and high pressure processes"

**Marcela Bilek, University of Sydney, Australia**

"Hemocompatible and inherently biofunctionalisable coatings for cardiovascular stents"

**Eric Chason, Brown University, CT, USA**

"Origin and evolution of stress"

**Diederik Depla, Ghent University, Belgium**

"Some answers and a million of questions about reactive magnetron sputtering"

**Gary Doll, University of Akron, OH, USA**

"Wear and corrosion resistant coatings for demanding environments"

**Ali Erdemir, Argonne National Laboratory, Argonne, IL, USA**

"Re-engineering of tribological interfaces toward more efficient and green transportation technologies"

**Joseph E. Greene, University of Illinois at Urbana-Champaign, IL, USA**

"Evening lecture: Tracing the recorded history of thin-film sputter deposition: from the 1800s to 2016"

**Jeon G. Han, Sungkyunkwan University, Suwon, South Korea**

"High rate synthesis of self assembled Si quantum dots using radical and plasma control in RF/UHF high density plasmas at low temperature"

**Stéphane Kéna-Cohen, Polytechnique Montréal, Montreal, QC, Canada**

"Functional organic and metallic films for optoelectronics"

**Paul Mayerhofer, Technische Universitaet Wien, Austria**

"Innovative ceramic-like coatings for tooling, machining, aerospace, energy and automotive industry"

**Susan Sinnott, University of Pennsylvania, PA, USA**

"Quantification of structure-property relationships at interfaces"

**Manu A. Subrahmanyam, Indian Institute of Technology Madras, Chennai, India**

"Advances in non-destructive surface and interface analyses using the Kelvin Probe"

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for program, registration,  
accommodation,  
travel, information updates

**Specific information**

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### Short course A

**"Nucleation and growth of self-assembled nanostructures: materials science of small things: self-assembly and self-organization"**

by Joe Greene, University of Illinois at Urbana-Champaign, IL, USA

The goal of this course is to:

- Understand the primary experimental variables and surface reaction paths controlling nucleation/growth kinetics and microstructural evolution during vapor-phase deposition.
- Learn about the primary classical and quantum effects which controllably alter the properties of increasingly small nanostructures.
- Understand the mechanisms controlling self-assembly and self-organization during nanostructure growth.
- Learn how to better design nanostructure growth processes.

### Short course B

**"Ionized physical vapor deposition"**

by André Anders, Lawrence Berkeley National Laboratory, Berkeley, CA, USA

This course is intended for engineers, technicians, students, and others interested in high power pulsed plasma processing of materials. The course consists of a general introduction to the basics of plasma and sheath physics, followed by detailed explanations of the processes in pulsed plasmas and in pulsed bias approaches, and of the effects of power density on plasma properties.