



Bio-inspired Materials Conference

Sustainable Materials Inspired by the Living world for Energy

Rueil-Malmaison (near Paris), France ■ 6-8 April 2016

Wednesday 6 April

- 8.30 Registration
- 9.00 Opening of the conference
D. Uzio, G. Mabilon, Scientific Correspondents of SMILE 2016 (IFPEN, France)
- Welcome Address
X. Longaygue, Scientific Division (IFPEN, France)

- 9.30 Plenary Lecture by **J. Livage** (Collège de France, UPMC, France)
Bio-inspired living materials

SESSION 1: SMART FUNCTIONAL BIO-INSPIRED MATERIALS

- 10.15 Self-healing thin glass coatings for high temperature applications
F. O. Méar¹, T. Carlier¹, L. Montagne¹, R. Podor², S. Saitzek¹, J-F. Blach¹,
R. Desfeux¹ (1 Univ. Lille Nord de France - UCCS - CNRS, 2 Institut de Chimie
Séparative de Marcoule – CEA – CNRS - UM2 - ENSCM, France)
- 10.45 Bio-inspired gradient surfaces with controlling of wettability
Y. Zheng (Beihang Univ., China)
- 11.15 Break
- 11.35 Keynote address by **B. Bhushan** (Ohio State Univ., USA)
**Biomimetics: bio-inspired, mechanically durable, nanostructured surfaces for
low drag and super-philicity/phobicity**
- 12.15 Plaster reinforced composite for building applications: thermophysical and mechanical
properties
O. Hamdaoui¹, A. Mazioud², L. Ibos², M. Safi¹, O. Limam¹
(1 Ecole Nationale d'Ingénieurs de Tunis, Tunisia; 2 Univ. Paris Est Créteil, France)
- 12.45 Lunch
- 14.00 Keynote address by R. Backov (CRPP-CNRS, France)
**Integrative chemistry: from bio-inspired strategies toward advanced functional
materials**
- 14.40 Bionanocomposites on the basis of polysaccharides
Y. Shchipunov (Russian Academy of Sciences, Russia)

- 15.10 A bio-sourced green hydrophilic MOF for heat reallocation
A. Permyakova^{1,2}, E. Courbon², O. Skrylnyk², M. Affram¹, G. Mouchaham¹, F. Nouar¹, G. De Weireld², T. Devic¹, J.S. Lee³, C-H. Jun³, Y.K. Hwang³, J-S. Chang³, N. Steunou¹, M. Frere², C. Serre¹ (1 UVSQ, France ; 2 UMONS, Belgium ; 3 KRICT, Korea)
- 15.40 Photosynthetic glass: as a responsive exothermic system
M. Alston (Univ. of Salford, UK)
- 16.10 Break
- 16.30 Formation of hybrid materials based on calcium phosphate deposit on carbon fiber scaffold
Q. Picard¹, L. Guichaoua¹, S. Delpoux¹, N. Rochet², J. Chancolon¹, F. Fayon³, F. Warmont¹, S. Bonnamy¹ (1 Univ.of Orléans, 2 iBV – INSERM/BIPOA, CEMHTI - CNRS, France)
- 17.00 How simple macromolecular chemistry and bottom-up processes can lead to functional bio-inspired materials?
L. Billon (UPPA, France)
- 17.30 Cellular solids in sea urchin spines: numerical analysis and possible use cases
I. Schäfer (IMWF, Germany)
- 17.50 End of the presentations – Departure to the cocktail dinner party

Thursday 7 April 2016

- 9.00 Keynote address by **K. Raskin** (CEEBIOS, France)
Bio-inspiration, a tool for responsible innovation?
- 9.40 **Round Table with industrial actors**
Bio-inspiration as a new paradigm in industrial Research & Innovation
Moderator: A. Renaudin (NewCorp Conseil, France)
- 12.00 Lunch
- SESSION 2: BIO-INSPIRATION FOR PHOTO & ELECTROCATALYSIS
- 13.30 Keynote address by **T. Fan** (Shanghai Jiaotong Univ., China)
Hydrogen evolution via sunlight water splitting on an artificial butterfly wing architecture learning from nature
T. Fan, X. Guo, Q. Zhao, H. Liu, H. Zhou, D. Zhang (Shanghai Jiaotong Univ., China)
- 14.10 From nickel complexes to hydrogen evolving material
M. Sircoglou, S. Cherdo, N. T. Vo, A. Aukauloo (Univ. Paris Saclay, ICMMO - CNRS, Univ. Paris Sud, France)

- 14.40 New device architecture for advanced photocatalytic degradation
O. Ishchenko^{1,2}, I. Fechete², P. Turek³, F. Garin², D. Lenoble¹ (1 LIST, Luxembourg; 2 ICPEES – CNRS - Univ. de Strasbourg, 3 Institut de Chimie - CNRS - Univ. de Strasbourg, France)
- 15.10 Bio-inspired and biomimetic materials towards solar energy utilization
H. Zhou, T. Fan, D. Zhang (Shanghai Jiaotong Univ., China)
- 15.40 Break
- 16.10 Molecular assemblies for solar synthesis
A. Aukauloo (ICMMO – CNRS - Univ. Paris Sud, France)
- 16.40 Hybrid biofuel cell powered by glucose and oxygen
A. Both-Engel, M. Bechelany, D. Cornu, S. Tingry (Institut Européen des Membranes- Univ. de Montpellier-ENSCM-CNRS, France)
- 17.00 End of the presentations

Friday 8 April 2016

SESSION 3 : BIO-INSPIRED HETEROGENEOUS CATALYSTS

- 9.00 Keynote address by **M-O. Coppens** (NICE Research, Univ. College London, UK)
Nature inspired chemical engineering - pathways to innovation and sustainability
- 9.40 Cobalt containing polysiloxanes as potential catalysts
G. A. Queiroz, M. Wilhelm, K. Rezwani (Univ. of Bremen, Germany)
- 10.00 Break
- 10.30 Bio-inspired synthesis of transition metal sulfides catalysts for hydrotreating reactions
R. Munirathinam, D. Uzio, G. Pirngruber, D. Laurenti (IFPEN, France)
- 11.00 A low temperature, isothermal gas-phase system for the conversion of methane to methanol over a biomimetically inspired dicopper core
J. Thompson, T. Sheppard, C. Hamill, H. Daly, A. Goguet, D. Rooney (Queen's Univ. Belfast, UK)
- 11.30 Closing address
- 11.35 End of the conference

