



Interaction of biological membranes with nano-objects

18-19 Nov 2019, Toulouse, France

InterBioNano Workshop: Interaction of biological membranes with nano-objects

18-19 November 2019, LAAS-CNRS, 7 Avenue du Colonel Roche, Toulouse, France

<https://interbionano.sciencesconf.org/>

Nano/bio interfaces are crucial both for nanomedicine and as regards nanoparticles toxicity. The workshop will focus on emerging complementary tools and approaches developed to study how nano-objects interact with biological membranes: biomimetic and natural membranes, microfluidic technologies, biophysics of endocytosis, *in silico* studies, physical-chemistry of nano-objects and membranes.

Monday, 18th November

8h30-9h Welcome, Registration. **9h** – Opening (Pierre Joseph, LAAS-CNRS, and Debora Berti, CSGI Florence)

9h15-10h Giovanna Fragneto – ILL, Grenoble

Floating bilayers as planar models to study membrane-nanoparticle interactions and membrane protein function.

10h-10h45 Coffee break / Posters

10h45-11h30. Stéphanie Mangenot – Curie Institute, Paris

*Shaping membrane with proteins: Deciphering mechanisms with *in vitro* system.*

11h30-12h15 Giulia Rossi – Univ Genova, Italy

Monolayer-protected Au nanoparticles and their interactions with the biological environment: the role of ligand composition and conformation

12h15 – 14h30 Lunch and poster session. **13h45-14h30 LAAS-CNRS Clean room visit** (optional)

14h30-15h15 Clément Roux – IMRCP, University of Toulouse

Experimental study of the interactions between polymer nanovectors and lipid membranes.

15h15-16h Tom Robinson – Max Planck Institute, Postdam, Germany

Microfluidic tools for synthetic biology and lipid membrane biophysics

16h-16h45 Coffee break / Posters

16h45-17h45 Gladys Massiera & Laura Casanellas – Lab Charles Coulomb, Montpellier

cDICE (Continuous Droplet Interface Crossing Encapsulation) as a tool to design biomimetic cells and tissues

Tuesday, 19th November

8h45-9h30 Anna Salvati – Univ Groningen, Netherlands

How do nanomedicines enter cells? Interactions at the cell membrane and endocytosis of nano-sized objects

9h30-10h15 Tommy Nylander – Univ Lund, Sweden

Non-lamellar lipid nanostructures at interfaces

10h15-10h45 Coffee break / Posters

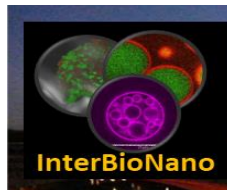
10h45-11h30 - Evert Haanappel – IPBS, Toulouse

The conical shape of DIM lipids promotes Mycobacterium tuberculosis infection of macrophages

11h30-12h15 Debora Berti (CSGI, Univ Florence, Italy): *Nanostructured materials interacting with synthetic and natural lipid mesophases: challenges and opportunities*

12h15 – Concluding Remarks

12h30 – 13h30 Lunch [LAAS]



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Practical information

The conference will take place at LAAS-CNRS, 7, avenue du Colonel Roche, Toulouse.

Information to reach LAAS: <https://www.laas.fr/public/en/node/147>

The talks will be in Europe room, at LAAS

Coffee breaks and lunches will be served in LAAS Hall

Posters will be displayed in LAAS Hall during the coffee breaks and lunches.

Registration for LAAS clean-room visit on Monday (13h45) will be done on-site on Monday 18th.

List of Posters (displayed in LAAS Hall)

Anionic gold nanoparticles perturb phase-separation and form ordered lattices in multidomain lipid membranes

E. Canepa (UniGe), **A. De Marco** (UniGe), **S. Salassi** (UniGe), **D. Bochicchio** (UniGe), **D. Odino** (UniGe), **C. Lambruschini** (UniGe), **R. Brescia** (IIT, Genoa), **F. Canepa** (UniGe), **S. Dante** (IIT, Genoa), **F. Stellacci** (EPFL), **A. Relini** (UniGe), **C. Canale** (UniGe) and **G. Rossi** (UniGe)

UniGe, IIT Genoa and EPFL, Lausanne

Curvature-induced domain formation in biomembranes

Julie Cornet, **Matthieu Chavent**, **Manoel Manghi**, **Nicolas Destainville**

LPT, Toulouse

Understanding the efficiency of polymer-based nanocarriers for photodynamic therapy

M. Demazeau, **D. Berti**, **B. Lonetti**, **A-F Mingotaud**, **C. Montis**, **V. Pimienta**, **C. Roux**, **U. Till**, **P. Vicendo**

IMRCP, Toulouse

Biomimetic membranes manipulation in microfluidics: Towards on - chip micropipette.

Marianne Elias, **A Dutoya**, **A Laborde**, **A Lecestre**, **C Montis**, **L Caselli**, **D Berti**, **B Lonetti**, **C Roux**, **P Joseph**

LAAS-CNRS, IMRCP, Toulouse and CSGI, Univ Florence

Biomimetic nanostructured materials as a tool to study cells and tissues.

M. FARNO, **S. GROSSEMY**, **S. CADOT**, **A. QUILLET-MARY**, **D. CUSSAC**, **B. SALLERIN** and **S. GIROD FULLANA**.

CIRIMAT, Toulouse

Translocation of the cell penetrating peptide Penetratin through asymmetric model membranes formed by a microfluidic device: role of the lipids and transmembrane potential.

Pauline Gehan, **Vincent Vivier**, **Kieu Ngo**, **Sandrine Sagan**, **Astrid Walrant**, **Sophie Cribier**, **Nicolas**

Rodriguez

Sorbonne Université, Paris

Surface characterization of bacteria and biofilms by NAP-XPS,

Brice Hoff

SPECS Nano Surface Analysis

Screening of the synthesis route on the structural, magnetic and magnetocaloric properties of $\text{La}_{0.6}\text{Ca}_{0.2}\text{Ba}_{0.2}\text{MnO}_3$ manganite: A comparison between solid-solid state process and a combination polyol process and Spark Plasma Sintering.

H. Ben Khelifa, **F. Ayadi**, **W. Cheikhrouhou-Koubaa**, **G. Schmerber**

Lab physique, LT2S (LR16 CNRS 01), Digital Research Center of Sfax, Sfax Technopark, Cité El Ons, Tunisia

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