

NANO IN BIO 2018

Nanosciences for Life & Materials Sciences



NANO IN BIO 2018 CONFERENCE



PROGRAM & BOOK OF ABSTRACTS

LA CRÉOLE BEACH HÔTEL & SPA

22-27 MAY 2018 - FORT ROYAL ROOM



NANO IN BIO 2018 CONFERENCE

WELCOME & COMMITTEES

LA CRÉOLE BEACH HÔTEL & SPA

Welcome at NANOinBIO 2018: Nanosciences for Life & Materials Sciences

Gather around several researcher communities from various fields ranging from physics to biology through chemistry, medical sciences and material sciences. Create structural links between the different scientific communities to initiate multi-technical collaborations to advance each topic in a new multidisciplinary approach. Initiate international projects between European laboratories and those implanted in the basin of the Americas, including United States, Canada and the emerging countries (Brazil, Mexico, Argentina), whose excellence in research and research and development are increasing since the last decade.

TOPICS 2018

Nanosciences at the frontiers with biology
Nanomedicine, Nanotoxicology and Nanobiotechnology
Nano-biomaterials & Latest Applications for Health
Nano-Instrumentation and Application for Life and Materials Sciences

Organizing and Scientific committee

Grégory Francius, LCPME UMR 7564, CNRS - Université de Lorraine, Nancy, France
Jessem Landoulsi, LRS UMR 7197, CNRS - Sorbonne Université, Paris, France
Vincent Dupres, Centre d'infection et immunité de Lille - UMR 8204 - Lille, France
Etienne Dague, LAAS UPR 8001, CNRS, Toulouse, France
Karim El Kirat, UMR 7338, Université de Technologie de Compiègne, Compiègne, France

Administrative Staff

Isabelle Vuillaume, LRS UMR 7197, CNRS - Sorbonne Université, Paris, France
Sylvie Kautz, LCPME UMR 7564, CNRS - Université de Lorraine, Nancy, France
Caroline Percheron, Destination Séminaire

Local Organizing committee

Laurence Romana, GTSI, Université des Antilles, Pointe-à-Pitre, France
Marc Romana, UMRS 1134 INSERM, Pointe-à-Pitre, France

Organizing partners





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Society For Biomaterials

The Society For Biomaterials is a multidisciplinary society of academic, healthcare, governmental and business professionals dedicated to promoting advancements in all aspects of biomaterial science, education and professional standards to enhance human health and quality of life.



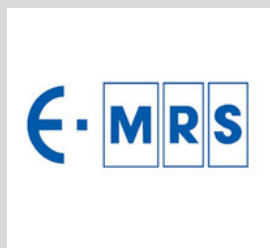
JPK Instruments

JPK Instruments AG is a world-leading manufacturer of nanoanalytic instruments - particularly atomic force microscope (AFM) systems and optical tweezers - for a broad range of applications reaching from soft-matter physics to nano-optics, from surface chemistry to molecular biology and from cell biology to biomedicine. From its earliest days applying atomic force microscope (AFM) technology,



Clinam

The goal of the CLINAM Foundation is to contribute to the benefit of patients and society by exploring and translating leading edge technologies towards clinical application, with an emphasis on nanomedicine, targeted medicine, precision medicine and personalization.



European Materials Research Society

Founded in 1983, the European Materials Research Society (E-MRS) now has more than 4,000 members from industry, government, academia and research laboratories, who meet regularly to debate recent technological developments of functional materials.



Bruker

Bruker enables scientists to make breakthrough discoveries and develop new applications that improve the quality of human life. Bruker's high-performance scientific instruments and high-value analytical and diagnostic solutions enable scientists to explore life and materials at molecular, cellular and microscopic levels. In close cooperation with our customers,



Cytosurge

With FluidFM technology, Cytosurge provides a new generation of tools to stimulate novel applications at the forefront of nanotechnology, additive manufacturing, life sciences and single cell biology.



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Lot Quantum Design

For over 45 years, we have been one of the leading European distributors of high-tech instrumentation and consumables for scientific, academic and industrial research. Our product range comprises scientific light sources and optics, components, and systems for the life sciences, material characterization, cryotechnology, spectroscopy and imaging.



Phytobôkaz

Located in Gourbeyre on the island of Guadeloupe, Phytobôkaz laboratory manufactures and offers products whose active ingredients come directly from the Caribbean flora.



Région Guadeloupe

Located at the centre of the Caribbean region, the Guadeloupe archipelago is 200 km away from Florida and 600 km away from South American coasts



Conseil Départemental de la Guadeloupe



The Comité du Tourisme des Îles de Guadeloupe

The Comité du Tourisme des Îles de Guadeloupe (Guadeloupe Islands Tourism Board) was established on 12 December 2003, at the initiative of the departmental and regional governments, to provide visitors with all the information they need in order to learn more about Guadeloupe and prepare for their travel there.



Bus



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ACS Publications

The American Chemical Society

The American Chemical Society is the leading publisher of peer-reviewed research journals in the chemical and related sciences, serving scientific communities worldwide through an unparalleled commitment to quality, reliability, and innovation.

Langmuir

Langmuir is the leading journal focusing on the fundamental science of systems and materials in which the interface dominates structure and function.

LANGMUIR



The European Microscopy Society (EMS)

The European Microscopy Society (EMS) is committed to promoting the use and the quality of advanced microscopy in all its aspects in Europe, with particular reference to developments in instrumentation and methodology and novel applications of all types of microscopy.



British Society for Nanomedicine

With the global benefits of the new science of nanomedicine growing each year, the British Society for Nanomedicine has been created to allow open access for industry, academia, clinicians and the public to news and details of ongoing research throughout the UK



NANO IN BIO 2018 CONFERENCE

TUESDAY, MAY 22

LA CRÉOLE BEACH HÔTEL & SPA

08.15 am – 09.15 am

Welcome Reception & Registration

SPRING SCHOOL



09.20 am – 09.50 am

Dr. Frank Lafont - Correlative approaches using AFM to study the elasticity of living cells

09.50 am – 10.10 am

J. Beaumale - High throughput and automation in bio atomic force microscopy - Bruker

10.10 am – 10.40 am

Dr. Tomaso Zambelli - Force controlled single-cell perturbation

10.40 am – 11.00 am

D. Ossola - The World of FluidFM Applications: From Nanolithography through Single Cell Manipulation, to Injection into Single Cells - Cytosurge

11.00 am - 11.20 am

Coffee Break

11.20 am – 11.50 am

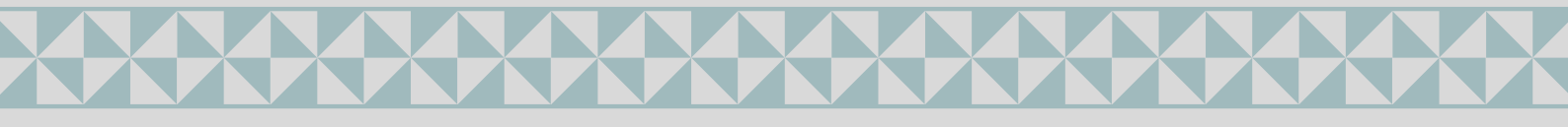
Prof. Emmanuel Maisonhaute - In situ Raman and NanoRaman spectroscopy: recent advances

11.50 am – 12.10 pm

B. Holmes - Bio AFM for correlative nanomanipulation with SuperResolution microscopy, optical tweezers and nanomechanical imaging - JPK Instruments

12.10 pm – 02.00 pm

Conference Lunch





NANO IN BIO 2018 CONFERENCE

TUESDAY, MAY 22

LA CRÉOLE BEACH HÔTEL & SPA

EXHIBITION & POSTER SESSION

02.00 pm – 03.30 pm

Showroom with sponsors (Bruker, JPK, Cytosurge, Phytobokaz)

VISIT & GROUP PHOTO

04.00 pm – 06.00 pm

Visit & Group photos at Memorial Act or Fort Fleur d'Épée



07.30 pm

OPENING CEREMONY & CONFERENCE DINNER



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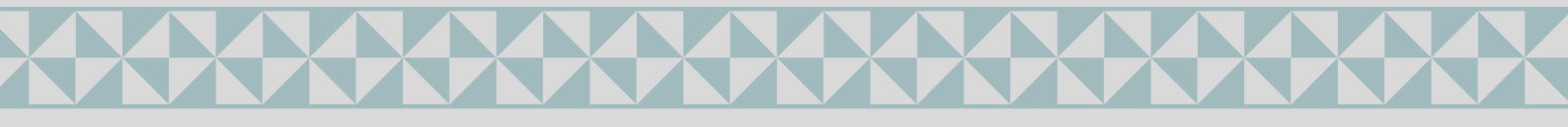
WEDNESDAY, MAY 23

LA CRÉOLE BEACH HÔTEL & SPA

08.15 am – 09.00 am Welcome Reception & Registration

CONFERENCE SESSION I NANOMEDICINE, NANOBIOTECHNOLOGY & NANOTOXICOLOGY

09.00 am – 09.40 am	Keynote : Prof. Francesco Stellacci - Advances in Nanoparticles and Solid-Liquid Interfaces Characterization
09.40 am – 10.00 am	G. Baffou - Single cell thermal biology using gold nanoparticles
10.00 am – 10.20 am	D. Isabey - Sensitivity of alveolar epithelial cells to changes in surface energy induced by liquid perfluorocarbons
10.20 am – 10.40 am	M. Le Goas - Polymer-grafted gold nanoparticles for cancer treatment: synthesis and evaluation of their radiosensitizing properties
10.40 am – 11.00 am	Coffee Break
11.00 am – 11.20 am	M. Marchioni - Silver nanoparticle assemblies: a promising alternative “less toxic for mammals, active against bacterial strains”
11.20 am – 11.40 am	C. Angely - Cellular and molecular properties of epithelial pulmonary cells invaded by a virulent factor
11.40 am – 12.00 pm	R. Shahbazian - Nanoscale Understanding of Growth and Inhibition of Calcium Oxalate Kidney Stone Nanocrystals
12.00 pm – 02.00 pm	Conference Lunch





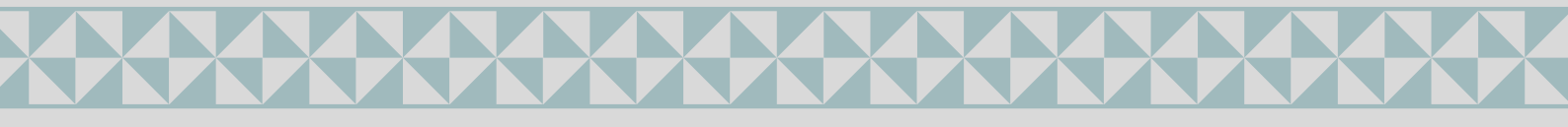
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WEDNESDAY, MAY 23

LA CRÉOLE BEACH HÔTEL & SPA

CONFERENCE SESSION II NANO-BIOMATERIALS & LATEST APPLICATIONS FOR HEALTH

02.00 pm – 02.40 pm	Keynote : Prof. Pierre Schaaf - From electrochemical to enzyme triggered localized self-assembly processes
02.40 pm – 03.00 pm	S. Demoustier-Champagne - Uptake of Long Protein-Polyelectrolyte Nanotubes by Dendritic Cells
03.00 pm – 03.20 pm	T. Shokuhfar - Bioinspired nanotubes for enhanced biomineralization at bone-implant interface
03.20 pm – 03.40 pm	Z. Mashwani - in vitro Germination and Biochemical Profiling of Brassica napus in Response to Biosynthesized Zinc Nanoparticle
03.40 pm – 04.20 pm	Coffee Break
04.20 pm – 05.00 pm	Keynote : Dr. Henry Joseph
05.00 pm – 05.20 pm	H. Martin-Yken - New Strategies in the fight against Ciguatera
05.20 pm – 05.40 pm	C. Formosa-Dague - A multi-scale study of the flocculation/flotation mechanism of the marine microalgae <i>Phaeodactylum tricornutum</i> under increased pH
05.40 pm – 06.00 pm	A. Gusev - Toxicology assessment of zirconium trisulfide (ZrS ₃) nanoribbons in biofluorescence test on bacteria <i>E. coli</i>
07.30 pm	Conference Dinner





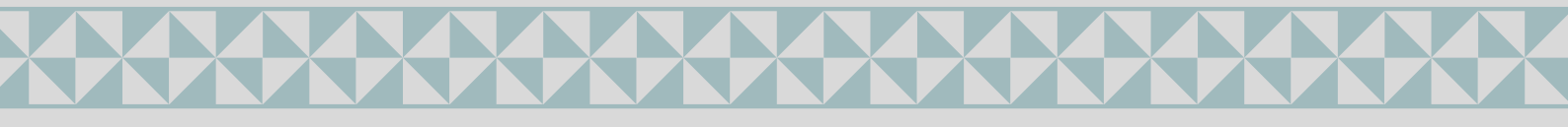
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THURSDAY, MAY 24

LA CRÉOLE BEACH HÔTEL & SPA

CONFERENCE SESSION III NANO-INSTRUMENTATION FOR MATERIALS & LIFE SCIENCE

09.00 am – 09.40 am	Keynote: Prof. Georg Fantner - Measuring reaction kinetics one molecule at a time
09.40 am – 10.00 am	D. Sicard – Micromechanical properties of lung tissue : AFM study on aging and AFM tip diameter effects
10.00 am – 10.20 am	Y.J. Oh - Investigation of curli mediated bacterial adhesion using AFM force spectroscopy
10.20 am – 10.40 am	A. Erofeev: Electrochemical Nanoprobes For Single Cell Analysis
10.40 am – 11.00 am	Coffee Break
11.00 am – 11.20 am	G. Minatchy – Determination of the mechanical properties of red blood cells in sickle cell disease
11.20 am – 11.40 am	P.V. Gorelkin – Nanopipette navigation system as a new tool for Biomedical Application
11.40 am – 12.00 pm	N.J. Lamb – Nano-pipette injection of mammalian cells for in cellulo modulation and analysis of metabolic activity and post-translational modifications.
12.00 pm – 02.00 pm	Conference Lunch





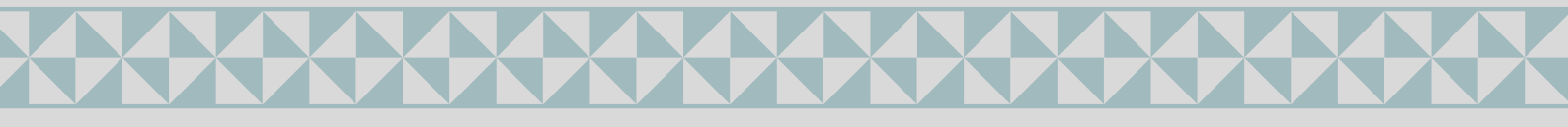
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THURSDAY, MAY 24

LA CRÉOLE BEACH HÔTEL & SPA

CONFERENCE SESSION IV NANO-INSTRUMENTATION FOR MATERIALS & LIFE SCIENCE

02.00 pm – 02.40 pm	Keynote: Prof. Monsterrat Calleja - Nanomechanics for the life sciences
02.40 pm – 03.00 pm	M. Sletmoen - Molecular mechanism underlying self-interactions of mucins investigated using optical tweezers
03.00 pm – 03.20 pm	R. Harisson - Nanosensor Embedded Microcarriers for Enhanced Cell Therapy Manufacturing
03.20 pm – 03.40 pm	A. Ismail - Towards the design of simple biodetection platforms on commercial silicon wafers
03.40 pm – 04.20 pm	Coffee Break
04.20 pm – 05.00 pm	F. Quiles - Spectrochemical and nanomechanical fingerprints allow differentiating the mechanism of action of drugs on bacteria
05.00 pm – 05.20 pm	D. Elad - Tissue engineered co-culture model of the placental barrier: Maternal-to-fetal transport of glucose and Quercetin
05.20 pm – 05.40 pm	J. Burgain - Adhesive interactions between milk glycoproteins and Lactobacillus rhamnosus GG impact bacterial attachment to intestinal cell
05.40 pm – 06.00 pm	D. Toybou - “Safer by design”: a responsible way to integrate silver nanowires (AgNW) on common applications
07.30 pm	Conference Dinner





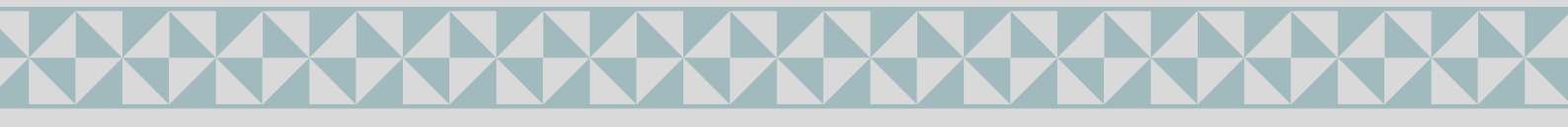
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FRIDAY, MAY 25

LA CRÉOLE BEACH HÔTEL & SPA

CONFERENCE SESSION V NANO-BIOMATERIALS & LATEST APPLICATIONS FOR HEALTH

09.00 am – 09.40 am	Keynote: Prof. Joseph Schlenoff - Controlling Cell and Protein Adhesion with Polyelectrolyte Complex Films
09.40 am – 10.00 am	C. Dupont-Gillain: Layer-by-layer assembly of proteins: mechanisms, applications and perspectives
10.00 am – 10.20 am	D. Duday - Engineered mesoporous silica nanoparticles for tissue regeneration through stem cell's therapies
10.20 am – 10.40 am	H. Alem - Thermo-responsive core/shell SPION and their drug release properties
10.40 am – 11.00 am	Coffee Break
11.00 am – 11.20 am	L. Tallet - Intelligent Antibacterial Coatings composed of poly(arginine) and hyaluronic acid
11.20 am – 11.40 am	L. Sun - Optical and Antibacterial Properties of Hybrid ZnO/Polymer Composites
11.40 am – 12.00 pm	O. Zakharova - Characterization of the antibacterial effects of TiS ₃ on E. coli
12.00 pm - 12.20 pm	V. Chauhan - Intracellular Processing of Silica-Coated Superparamagnetic Iron Nanoparticles in Human Mesenchymal Stem Cells
12.30 pm – 02.00 pm	Conference Lunch





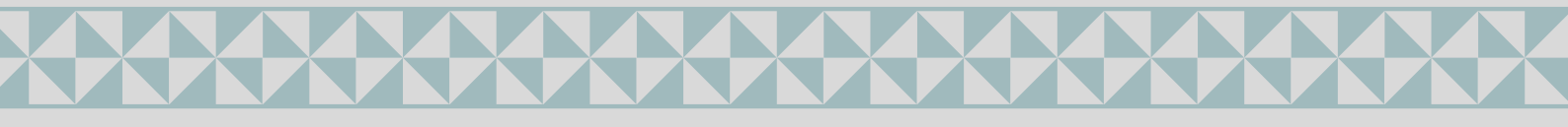
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FRIDAY, MAY 25

LA CRÉOLE BEACH HÔTEL & SPA

CONFERENCE SESSION VI NANOSCIENCES AT THE FRONTIERS WITH BIOLOGY

02.00 pm – 02.40 pm	Keynote: Prof. Kislun Voïtchovsky - Organisation and dynamics of metal ions at bio-interfaces: implications for properties of biomembranes
02.40 pm – 03.00 pm	M. Gao - Fructose-Enhanced Antibacterial Activity of Self-Assembled Nano Peptide Amphiphiles: A Combination of Computational Modeling and Experiments for Treating Antibiotic Resistant Infections
03.00 pm – 03.20 pm	J. Lakey - Caf1, a protein superpolymer with multiple uses in biotechnology and medicine
03.20 pm – 03.40 pm	H.-A. Nguyen - Synthesis and characterization of a surface enhance raman sensor based on turnip yellow mosaic virus
03.40 pm – 04.40 pm	Poster Session & Coffee Break
04.40 pm – 05.00 pm	R. Zirbs - Polypeptoids - synthetic polymers with functional secondary structures applied in core-shell nanomaterials
05.00 pm – 05.20 pm	E. Dujardin - Artificial repeat proteins designed as habit modifiers for the morphosynthesis of Au {111}-terminated anisotropic nanocrystals
05.20 pm – 05.40 pm	J.-F. Art - Immobilization of aluminum hydroxide particles on QCM sensors to elucidate antigen-adjuvant interaction mechanisms in vaccines
07.30 pm	Conference Dinner





NANO IN BIO 2018 CONFERENCE

SATURDAY, MAY 26

LA CRÉOLE BEACH HÔTEL & SPA

SOCIAL EVENT

07.00 am - 05.00 pm

Special Cruise to Petite
Terre Islands

Lagoon and Barrier Reef
discovery



06.30 pm - 07.30 pm

Caribbean Music &
Dance Showy



07.30 pm

Gala Dinner






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SUNDAY, MAY 27

LA CRÉOLE BEACH HÔTEL & SPA

CONFERENCE SESSION VII
NANOSCIENCES AT THE FRONTIERS WITH BIOLOGY

09.00 am – 09.40 am	Keynote: Prof. Peter Hinterdorfer - Filming and depicting molecular recognition with atomic force microscopy
09.40 am – 10.00 am	E. Yunda - A Probiotic Bacterium in the Abiotic Environment: a Multiscale Study of Surface Dependent Adhesion
10.00 am – 10.20 am	H. Yamada - Streptavidin nano-array utilizing 2-dimensional crystal of annexin V
10.20 am – 11.00 am	Coffee Break
11.00 am – 11.20 am	T. Dahms - Deconstructing and reconstructing the yeast cell wall
11.20 am – 11.40 am	A. Bitler - How anticancer drugs impair nanoscale protein patches at the macrophage surface : evidences from AFM
11.40 am – 12.20 pm	 NANOinBIO Awards & Closing Ceremony
12.30 pm – 01.30 pm	Conference Lunch

