

MICROBES Symposium – September 7-8, 2022

Auditorium Blandin, [Laboratoire de Physique des Solides](#)

Orsay, 1 rue Nicolas Appert, Bâtiment 510

September 7, 2022

9h00 - 9h30 Welcome - Coffee

9h30 - 9h40 MICROBES Peter Mergaert & Matthieu Jules

Session 1 - Health and Disease - Chair: Eric Raspaud

9h40 - 10h05 Sébastien Fromentin (MGP)

Toward a better understanding of the gut microbiome role in health and disease

10h05 - 10h30 Bernard Delmas (VIM)

Biosynthetic proteins as antivirals targeting the spike of SARS-CoV-2

10h30 - 10h55 Séverine Péchiné (MICALIS, Faculté de pharmacie)

Clostridioides difficile: understanding its virulence to develop innovative therapeutic strategies against this enteropathogenic bacterium

Pitch Session

10h55 - 11h00 Ariane Bize (PROSE)

Diversity of novel archaeal viruses infecting methanogens discovered through coupling of stable isotope probing and metagenomics

11h00 - 11h05 Adam Gargasson (FAST)

Sinorhizobium meliloti motility and chemotaxis

11h05 - 11h10 Gwenaelle Andre-Leroux (MalAGE)

Potentiation of selective inhibition of Mfd nanomachine

11h10 - 12h10 Poster session - Coffee | Physics lab visit (FAST, LPS)



12h10 - 13h40 Lunch time

Session 2 - Ecology and Evolution - Chair: Philippe Gérard

13h40 - 14h05 Tatiana Giraud (ESE)

The domestication of cheese fungi

14h05 - 14h30 Amandine Cornille (GQE)

Molecular cross-talk in a quadripartite interaction: the aphid, its bacteria and its hosts

14h30 - 14h55 Marina Elez (MICALIS)

Monitoring replication error repair and mutation dynamics in single bacterial cells

Pitch Session

14h55 - 15h00 Polina Muzyukina (I2BC)

Application of *Clostridium difficile* CRISPR-Cas system for epidemiological monitoring and infection prevention

15h00 - 15h05 Tatiana Rochat (VIM)

In vivo transcriptomics reveals the important role of two functionally distinct heme/iron transport systems in the virulence of a fish pathogen

15h05 - 15h10 Aya Yokota (I2BC)

Resistance to antimicrobial peptides in *Caballeronia insecticola* is crucial for the colonization of the *Riptortus pedestris* intestine

15h10 - 15h40 Coffee

Session 3 - Fundamental Microbiology - Chair: Ariane Bize

15h40 - 16h05 Virginia Lioy (I2BC)

New insights into the multiscale dynamic structuring of *Pseudomonas aeruginosa* chromosome

16h05 - 16h30 Florent Malloggi (NIMBE)

Microfluidic platform for monitoring *Saccharomyces cerevisiae* mutation accumulation

Pitch Session

16h30 - 16h35 Eric Raspaud (LPS)

Biocorrosion on nanofilms induces rapid bacterial motions via iron dissolution

16h35 - 16h40 Marion Coves (PROSE)

Characterization of virus-host dynamics in anaerobic digesters under abiotic stress

16h40 - 16h45 Taha Laroussi (LadHyX)

Phototactic oscillations of *Chlamydomonas reinhardtii* microalgae

16h45 - 18h00 Poster session - Drinks

September 8, 2022

9h00 - 9h30 Breakfast coffee

Session 3 - Fundamental Microbiology (continued)- Chair: Peter Mergaert

9h30 - 9h55 **Pedro Oliveira (GM)**

Beyond the methylome: the defensome landscape of complex microbial communities

9h55 - 10h20 **Guillaume Tresset & Amélie Leforestier (LPS)**

Physical virology: understanding assembly/disassembly processes in viral life cycles

Pitch Session

10h20 - 10h25 **Cédric Midoux (PROSE)**

Implementation of a Nanopore metagenomic workflow for time-series of complex microbial communities: MAG catalog and functional annotation

10h25 - 10h30 **Stéphanie Bury-Moné (I2BC)**

Ribosomal RNA operons define a central functional compartment in the *Streptomyces* chromosome

10h30 - 10h35 **Giann Karlo Aguirre Samboní (MExICo)**

Reset Petri Net Unfolding Semantics for Ecosystem Hypergraphs

10h35 - 10h40 **Tamara Basta (I2BC)**

The hyperthermophilic archaeon *Thermococcus kodakarensis* is resistant to pervasive negative supercoiling activity of DNA gyrase

10h40 - 11h40 Poster session - Coffee | Physics lab visit (FAST, LPS)



Session 4 - Systems Biology and Engineering - Chair: Harold Auradou

11h40 - 12h05 **David Vallenet (LABGeM)**

From genomes to microbial metabolism

Pitch Session

12h05 - 12h10 **Elias Gerges (II)**

Caractérisation du rôle de la protéine Lsr2 dans la virulence des morphotypes lisses et rugueux de *Mycobacterium abscessus*

12h10 - 12h15 **Romane Junker (MaIAGE)**

Construction of ASVs networks to monitor the temporal dynamics of bacterial communities - Application to public datasets on vegetable fermentations

12h15 - 12h20 **Shih-Hao Lin (C2N)**

Development of non-enzymatic lactic acid sensor with screen-printed porous electrode for non-invasive point-of-care detection

12h20 - 12h25 **Catherine Even (LPS)**

Microalgae for CO₂ capture

12h25 - 13h55 Lunch time

Session 4 - Systems Biology and Engineering (continued)

13h55 - 14h20 **Bruno Le Pioufle (ENS) & Filipa Lopes (LGPM)**

Biophysics approaches to study microalgae: from mechanisms to the bioprocess

14h20 - 14h45 **Théodore Bouchez (PROSE)**

Understanding and harnessing environmental microbiomes for biotechnology

Pitch Session

14h45 - 14h50 **Enrico Lorenzetti (LadHyX)**

Modelling mechanosensor dynamics in fission yeast

14h50 - 14h55 **Christophe Monnet (SayFood)**

Biotic interactions between two bacterial species growing at the surface of cheeses

14h55 - 15h00 **Magda Teixeira-Nunes (I2BC)**

Structural basis for the activation of bacterial ExoY nucleotidyl cyclase exotoxins by free or profilin-bound G-actin and impact of the ternary complexes on actin self-assembly *in vitro*.

15h00 – 16h00 Poster session - Coffee break

Session 5 - Agriculture and Food - Chair: Matthieu Jules

16h00 - 16h25 **Françoise Rul (MICALIS)**

Plant-based fermented food: new opportunities for the lactic acid bacterium *Streptococcus thermophilus*

16h25 - 16h50 **Harold Auradou (FAST)**

Bacteria in fluid mechanics

16h50 - 17h15 **Denis Faure (I2BC)**

Pathogen fitness traits as targets for chemical and biocontrol treatments preventing host colonization

17h15 - 17h20 **Closing - Organizing committee** - Harold Auradou, Ariane Bize, Philippe Gérard, Eric Raspaud

17h20 - 18h00 Drinks