

5-6-7
September
2022

Chemobionics

PISA
(Italy)

Scientific Agenda

Mon. 5 September

8:00-8:50 **REGISTRATION**

8:50-9:00 **Welcome & Introduction**

9:00-9:45 **KN Uwe Meierhenrich**

3D Presentation: ESA's space mission Rosetta-Philae - the detection of organic molecules on a cometary nucleus

9:45-10:00 **SP C. Ignacio Sainz-Díaz**

The effect of the presence of amino acids on the precipitation of inorganic chemical-garden membranes: Biomineralization at the origin of life

10:00-10:15 **SP Pawan Kumar**

Dynamic self-assembly to synchrony of active gel

10:15-10:30 **SP Marloes H. Bistervels**

Light-controlling nucleation and growth of metal carbonate crystals using resonant near-infrared laser heating

10:30-10:35 **FP Dawid Woś**

Structure and growth of mineral dendrites

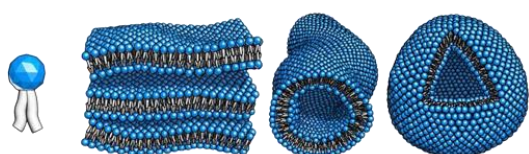
10:35-10:40 **FP Edina Balog**

The impact of reaction rate on the formation of flow-driven confined precipitate patterns

10:40-11:00 **Coffee Break**

11:00-11:25 **LP Guilhem Bourrie**

The $\text{Fe}(\text{OH})_2$ Amakinite - $\text{Mg}(\text{OH})_2$ Brucite - $\text{Fe}(\text{OH})_3$ system : thermodynamic data, experimental evidence and implication for fougérite formation by direct co-precipitation or by secondary oxidation in solid phase



11:25-11:50 **LP Federico Rossi**

Giant Vesicles as Tunable Reactors for a Bottom-up approach to Artificial Cells

11:50-12:05 **SP Maarten Biesheuvel**

The mysterious force called osmosis

12:05-12:20 **SP Marcin Górecki**

Circular Dichroism Imaging (CDi) for probing chiral solids

12:20-12:25 **FP Katharina Trost**

The constant rate of LGT across geological time as far back as genomes go

12:25-12:30 **FP Paola Albanese**

Light-controllable shape transition and pore opening in cell-sized vesicular systems

12:30-12:35 **FP Ludovica Dei**

Modular and convergent synthesis of a new class of amphiphilic molecules for the formation of self-assembled materials

12:35-12:40 **FP Stefano Cadeddu**

Highly ordered assemblies of helicenes with phase-segregated siloxane block oligomers for CPL emission

12:40-13:00 **General Discussion**

13:00-15:00 **Lunch**

15:00-15:45 **KN Claudia Tomasini**

Design and Applications of Functional Peptide Materials

15:45-16:10 **LP Simone Giannerini**

Dichotomic Classes and Entropy Optimization in Coding Sequences

16:10-16:25 **SP Sonja Grubišić**

GCMC studies of adsorption of sulfur dioxide and hydrogen sulfide by metal organic frameworks

16:25-16:30 **FP Tamara Erceg**

Hyaluronic acid based chemical gardens

16:30 **Coffee Break and POSTER SESSION**

17:00-18:30 **Management committee meeting & Working groups meeting (for MC and WG members)**

Presentation Type

KeyNote (40 min. + 5)

Long Presentation (20 min + 5)

Short Presentation (10 min + 5)

Flash Presentation (5 min)

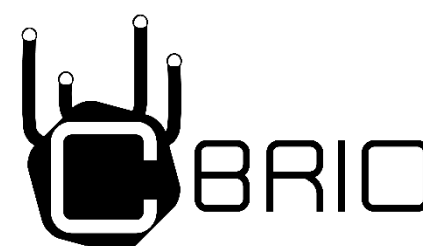
Conference Venue

University of Pisa

Polo Didattico delle Piagge

Via Giacomo Matteotti, 11

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Tue. 6 September

9:00-9:45 **KN** *Anne De Wit*

Precipitation patterns and reaction fronts in radial geometries

9:45-10:10 **LP** *Gunseli Bayram Akcapinar*

Towards Understanding Self-Assembly Behavior of a Fungal Hydrophobin (RodA) at Air/Water Interfaces through Comparative Molecular Dynamics (MD) Analysis

10:10-10:25 **SP** *Silvia Holler*

Biom mineralization at the origins of life

10:25-10:40 **SP** *Inge Hinterwaldner*

Bubble-driven Action Painting: Chemical Gardens' Potential for a New Conception of Multi-Agential Expression

10:40-11:00 **Coffee Break**

11:00-11:45 **XLP** *Thomas M. Hermans*

Controlling self-assembly by chemical fuels

11:45-12:10 **LP** *Jan Spitzer*

How Molecular Forces and Rotating Planets Create Life

12:10-12:25 **SP** *Hinrich Grothe*

Self-organization of micro-structures on a bitumen surface



12:25-12:40 **SP** *Tan-Phat Huynh*

A study on calcium-phosphate gardens grown from the interface of a κ -carrageenan-based hydrogel and interrelated liquid

12:40-12:45 **FP** *Nadia Valletti*

Synthesis of Hard Materials in Soft Vesicles: ZIF-8 precipitation in Giant Unilamellar Vesicles

12:45-12:50 **FP** *Falk S. P. Nagies*

To What Inanimate Matter Are We Most Closely Related and Does the Origin of Life Harbor Meaning

12:50-13:00 **General Discussion**

13:00-15:00 **Lunch**

15:00-15:45 **KN** *Dieter Braun*

Dew RNA world: starting evolution from the solid state

15:45-16:30 **XLP** *Lina M. Silva Bedoya*

Iron (III) chloride chemical gardens over carbon steel: electrochemistry and mineralogical composition

16:30-16:35 **FP** *Paszkal Papp*

Spatial precipitate separation enhanced by complex formation

16:35-17:00 **Coffee Break and POSTER SESSION**

17:00 **Bus for Social Event "Night at the museum"**, Museo di Storia Naturale dell'Università di Pisa, via Roma 79 - 56011 Calci (Pisa)

20:30 **Social Dinner** Ristorante Il Pozzo di San Vito, Via San Vito 12 Calci - 56011-PI

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Wed. 7 September

10:00-10:45 **KN** Michael Russell

Fougerite makes manifest the link between inanimate and animate matter

10:45-11:00 **SP** Piotr Szymczak

Dissolution in the flow: shapes and patterns

11:00-10:15 **SP** Eniko Volceanov

Hydrogen induced blister cracking of pipe steels in sour aqueous environments potential approach as chemical garden

10:15-10:20 **FP** Valentina Domenici

Didactic activities about the 'Chemical gardens' for kids and school students during covid-19 pandemic at the University of Pisa

10:20-10:25 **FP** Vesna Teofilović

Polymeric chemical gardens

10:25-10:30 **FP** Luka Negrojević

Influence of radial advection on properties of autocatalytic fronts

10:30-11:00 **Coffee break & POSTER SESSION**

11:00-11:15 **SP** Jessica L. E. Wimmer

Energetics and metabolism of the Last Universal Common Ancestor

11:15-11:30 **SP** Ivan Valent

Continuum models of ion transport

11:30-11:45 **SP** Daniel Santamaria

Selection and catalysis of amino acids by clay minerals



11:45-12:00 **SP** Pamela Knoll

From Incohesive Precipitation to Cohesive Chemical Garden Walls

12:00-12:05 **FP** Loraine Schwander

Mechanistic and kinetic analysis of CO₂ reduction in the context of abiogenesis

12:05-12:10 **FP** Frantisek Muzika

Electro-magnetic influence on BZ assemblages of ferroin loaded Dowex beads

12:10-12:15 **FP** Laura Spagnuolo

Self-assembly of lysozyme on cellulose nanocrystals for sustainable antibacterial materials

12:15-12:20 **FP** Mingchuan Zheng

Pellet-grown chemical gardens in horizontal confined geometry

12:20-13:00 **General Discussion**

13:00-15:00 **Lunch**

15:00-15:45 **KN** Joana C. Xavier

Earth's First Bioreactors: The Origin of Cells Meets Bioengineering

15:45-16:00 **SP** Raimund Feifel

Abiotic molecular oxygen production - ionic pathway from SO₂

16:00-16:15 **SP** F. Mine Balci

Vacancy Defect and Its Aggregates with Bjerrum Defects in s-I and s-II type Clathrate Hydrates

16:15-16:30 **SP** Claudio Larosa

The role of self-assembly of biomimetic compounds compared to polymer amorphous and crystalline phase by DLS, DSC and TGA techniques

16:30-16:35 **FP** Cem Bayram

Formation of Concomitant Nanomorphologies of Self-Aligned Anodic Titania Nanotube Arrays: Chaotic Nanowires and Nanobamboos

16:35-16:40 **FP** Teresa Huertas

A microfluidic labyrinth self-assembled by a chemical garden

16:40 **Final Remarks & Farewells**



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