



## Oral Presentations

May 15<sup>th</sup>

Registration from 9.00

**I SESSION, Molecules I** Chair: Andrea Notargiacomo, Lorenzo Stella

9.30 Institutional Opening Prof. Massimo Inguscio, CNR President

9.45-10.15 *Cristiano Viappiani (Parma University, SIBPA President)*

**Old proteins, new roles. The hydrogen atom of biology turns into a biotechnological tool**

10.15-10.30 *Sebastiano Filetti (Sapienza University of Rome Dept of Internal Medicine)*

Innovating medicine at the Sapienza: the experience of Sapienza Technology InnovaTion Centre for Health (STITCH)

10.30-10.45 *Francesco Stellato (University of Rome Tor Vergata, Dept of Physics)*

A Coherent Imaging XUV-FEL Users End-Station for the EuPRAXIA@SPARC\_LAB Free Electron Laser

10.45-11.00 *Letizia Tavagnacco (CNR-ISC Sapienza University)*

Molecular Origin of the Protein-Like Dynamical Transition in Microgels

10.45-11.15 Coffee Break sponsored by Thermo Scientific & Poster Session 1

**II SESSION, Cells I** Chair: Valentina Mussi, Mario Ledda

11.30-11.45 *Luigi Ciani (Thermo Scientific)*

Multivariate Analysis of Raman Spectra of Erythrocytes to Study the Biochemical Signature of Ageing

11.45-12:00 *Francesco Cardarelli (Scuola Normale Superiore, Pisa)*

Capturing Metabolism-Dependent Solvent Dynamics in a Trafficking Lysosome

12:00-12:15 *Giada Bianchetti (Università Cattolica del Sacro Cuore, Institute of Physics)*

Spectrally Resolved Lifetime Imaging of Intracellular Polarity for a Quantitative Biological Assessment of Lipid Metabolism in PC12 Neuronal Cells

12:15-12:30 *Federica Caselli (University of Rome Tor Vergata)*

Looking at cells with electric eyes

12:30-12:45 *Paola Piedimonte (Sapienza University of Rome, Basic and Applied Sciences for Engineering Dept)*

Biocompatible Silicon Nanowires for CMOS-IC Based Sensors

12:45-13:00 Flash presentations:

- *Alice Battistella (CNR-IOM)* AFM Investigation of the Mechanical Properties of Mouse Oocytes
- *Giorgio Gosti (IIT, Center for Life Nanoscience)* Phase Transitions in the Self-Organization of Neural Rosettes

- *Marco Lazzarino (CNR-IOM)* Microfabricated cantilevers for parallelized cell-cell adhesion measurements

13:00-14.15 Lunch & Poster Session 2

### III SESSION: Molecules II Chair: Velia Minicozzi, Domenico Cannatà

14.15-14.45 *Giorgio Colombo (Pavia University)*

#### The dynamics of molecular design

14.45-15.00 *Daniele Di Marino (Università Politecnica delle Marche, Department of Life and Environmental Sciences)*

Ligand Binding, Unbinding and Allosteric Effects: Deciphering Small-Molecule Modulation of HSP90

15.00 -15.15 *Lorenzo Camoni (University of Rome Tor Vergata, Department of Biology)*

From Plant Physiology to Pharmacology: Fusicocin Leaves the Leaves.

15.15 -15.30 *Alessandra Del Giudice (Sapienza University of Rome, Department of Chemistry)*

The Effect of Fatty Acid Binding in the Acid Isomerizations of Albumin Investigated with a Continuous Acidification Method

15.30 -15.45 *Marco Barbieri (Università degli Studi Roma Tre, Dipartimento di Scienze)*

Tracking Enzyme Activity with Quantum Light

15.45-16.00 Flash presentations

- *Michael Di Gioacchino (Università degli Studi Roma Tre)* Protection of Threosose Against Dehydration for Model Peptide
- *Emiliano De Santis (University of Rome Tor Vergata, Department of Physics)* Styrene–Dopamine receptor affinity: a Molecular Dynamics study
- *Aishwarya Dhar (University of Rome Tor Vergata, Department of Physics)* A $\beta$  Peptides and  $\beta$ -sheet Breakers. A Coarse Grained Molecular Dynamics Approach Using GO-Martini

16.00-16.45 Coffee Break sponsored by Optoprim & Poster Session 3

### IV SESSION: Cells II Chair: Luca Maiolo, Marco Girasole

16.45-17.00 *Gabriella Bretti (CNR-IAC)*

Mathematical modeling and simulation of the behavior of cells in biological networks

17.00-17.15 *Patrizia Guida (Università di Genova, Dept of Physics)*

Micro/nano devices based on biological models for biomedical applications

17.15-17.30 *Giacomo Frangipane (Sapienza Università di Roma, Dipartimento di Fisica )*

Dynamic density shaping of photokinetic E. coli

17.30-17.45 *Laura Andolfi (CNR-IOM)*

Investigation of Adhesion and Mechanical Properties of Human Glioma Cells by Atomic Force Microscopy”

17.45-18.00 *Claudia Testi (IIT, Center for Life Nanoscience)*

Brillouin Microscopy in Life Sciences

## May 16<sup>th</sup>

**V SESSION: Tissues** Chair: Francesca Romana Bertani, Marialilia Pea

9.15-9.45 *Enrico Gratton (University of California Irvine)*

### Applications of FLIM to tissue microscopy

9.45 -10.00 *Michael Di Gioacchino (Università degli Studi Roma Tre)*

Nanoscale myelin ultrastructural dynamics from out-of-equilibrium functional state to degraded state

10.00 -10.15 *Silvia Tommasin (Sapienza University Dept Human Neuroscience)* Evaluation of 5-year disease progression in multiple sclerosis via magnetic-resonance-based deep learning techniques.

10.15-10.30 *Laura Maugeri (Fondazione Santa Lucia IRCCS)*

Neuronal and tissue damages in a mouse spinal cord models of injury imaged by means of High-Resolution X-Ray Phase Contrast Micro-Tomography

10.30-10.45 *Francesca Di Stadio (CNR-ISC)*

Gaussian and non-Gaussian diffusion NMR imaging for endometrial carcinoma diagnosis & *Alessandra Maiuro (CNR-ISC)*

In vivo placenta diagnosis by water diffusion Magnetic Resonance Imaging

10.45-11.15 Coffee Break sponsored by PI

**VI SESSION: Organisms&Systems** Chair: Luca Businaro, Annamaria Gerardino

11.15-11.45 *Francesco Loreto (CNR Bio-Agrifood Sciences Department)*

On the multiple and overlooked functions of volatile isoprenoids in plant communication, defence, and interaction with the environment

11.45-12.00 *Guido Caldarelli (IMT Alti Studi Lucca)*

Network of Plants

12.00-12.15 *Carlo Massimo Casciola (Sapienza Università di Roma Dipartimento Ingegneria Meccanica e Aerospaziale)*

A blood-vessel-on-a-chip for cavitation enhanced endothelial permeability

12.15-12.30 *Edoardo Milanetti (Sapienza University Dept of Physics)*

Estimation of effective brain connectivity using a recurrent neural network model on magnetoencephalography data

12.30-12.45 *Fabrizio Bardelli (CNR-Nanotec)*

Asbestos bodies in human lung tissue studied with synchrotron radiation induced fluorescence and phase contrast tomography

12:45-14.00 Lunch & Poster Session 4

14.00 -14.30 *Odetta Limaj (ERC)*

European Research Council: a quick guide for applicants

14.30-14.45 *Giovanna Zimatore (eCampus University and CNR-INM)*

A Nonlinear Analysis of respiration rate and heart rate during continuous incremental exercise test

14:45-15.00 *Manuela Ciocca (University of Rome Tor Vergata)*

Bio-hybrid Optoelectronic interface for stimulation and characterization of biological tissues and cells

**VII SESSION: Molecules IIIa** Chair: Andrea Notargiacomo, Fabio Di Pietrantonio

**15.00 -15.15** *Tianji Ma (Institut Européen des Membranes, CNRS, Montpellier, France)*

Conical Track-etched Nanopore for a Free-Label Detection of OSCS Contaminants in Heparin

**15.15-15.30** *Giovanni Di Muccio (University of Rome Tor Vergata, Department of Industrial Engineering)*

Insights into Protein Sequencing with an  $\alpha$ -Hemolysin Nanopore by Atomistic Simulations

**15.15-15.30** *Alberto Giacomello (Sapienza University of Rome)*

Molecular Dynamics Simulations of Gating in Model Hydrophobic Nanopores.

**15.45-16.00** Flash presentations

- *Sébastien Balme (Institut Européen des Membranes, CNRS, Montpellier, France)* Single Nanopore to Follow Tau Protein Aggregation Induced by Heparin.
- *Mauro Chinappi (University of Rome Tor Vergata, Department of Industrial Engineering)* Protein Sequencing via Nanopore Based Devices: a Theoretical/Numerical Perspective.
- *Laura Fazi (University of Rome Tor Vergata, NAST Center)* Carbon nanotube-based stretchable composite materials for electronic devices and applications

**16.00-16.45** Coffee Break & Poster Session 5

**VII SESSION: Molecules IIIb** Chair: Giovanni Longo, Massimiliano Benetti

**16.45-17.00** *Denise Pezzuoli (University of Genova, Department of Physics)*

Development of nanofluidic devices for DNA detection and nanoparticles sizing.

**17.00 -17.15** *Alejandro Soto-Ospina (University of Antioquia, Molecular Genetic Group, Medellín, Colombia.)*

Structural and Functional Analysis of Mutations in Presenilin-1 Protein and its Relation with Early-Familiar Alzheimer's Disease through Bioinformatics and Hybrids methods Quantum Mechanics and Molecular Mechanics (QM/MM).

**17.15-17.30** *Franco Tardani (CNR-ISC Sapienza University)*

Halloysite Nanoclays as Potential Nucleic Acids Nanovectors: Insights into Spontaneous Interactions

**17.30-17.45** *Sara Gabrielli (University of Rome Tor Vergata, Department of Chemical Science and Technologies).*

Probing Structure and Mobility of Proteins in the Amorphous State at Low Hydration

**17.45-18.00** Poster award sponsored by SIBPA, Image award offered by Tech4Bio group and Closing Remarks



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