3rd Workshop on Advanced NanoBioscience. CNB-CSIC

Friday, 26th May, 2023

9:20 – 9:30 Welcome
Fernando Moreno-Herrero (CNB-CSIC, Madrid). Main organizer

Session 1: Advanced biophysical approaches based on microscopy, optical and magnetic tweezers

Chair: **Fernando Moreno-Herrero (CNB-CSIC, Madrid)**

9:30 – 10:15 Keynote TALK

Unravelling biomolecular structure, interactions and dynamics with mass photometry
Philipp Kukura (University of Oxford, UK)

10:15 – 10:35 *Unveiling the contribution of lncRNA NIHCOLE to the repair of DNA breaks using Magnetic Tweezers and Fluorescence-correlated Optical Trapping*
Sara de Bragança (CNB-CSIC, Madrid)

10:35 – 10:55 *Comparative analysis of force generation by dynamin isoforms during membrane remodelling*
Borja Ibarra (IMDEA-Nanociencia, Madrid, Spain)

10:55 – 11:15 *Exploring DNA repair at the single-molecule level*
Silvia Hormeño (CNB-CSIC, Madrid)

11.15 – 12.00 **Coffee Break (sponsored by Lumicks™) + Poster Session**

Session 2: Advanced biophysical approaches based on nanopores

Chair: **Sara de Bragança (CNB-CSIC, Madrid)**

12:00 – 12:45 Keynote TALK

The timing of life at the nanoscale
Sonja Schmid (Wageningen University & Research, The Netherlands)

12:45 – 13:05 *DNA nanotechnology to engineer advanced nanomaterials for biomedical applications*
Silvia Hernandez-Ainsa (Institute of Nanoscience and Materials of Aragon, CSIC-University of Zaragoza, Zaragoza)

13:05 – 13:25 *Analysis of single protein molecules with nanopores*
David Rodriguez-Larrea (Instituto Biofisika, Bilbao)

13:25 – 13:45 *Getting a grip on dynamic single molecules with correlative optical tweezers*
Emma Verver (LUMICKS™, The Netherlands)

13:45 – 15:00 **Lunch + Poster Session**

Session 3: Advanced biophysical approaches based on AFM

Chair: **Mikel Marin Baquero (CNB-CSIC, Madrid)**

15:00 – 15:45 Keynote TALK

Decoding mechanical fingerprints of cellular components in pathological conditions: a multiscale perspective
Andra Dumitru (CNIC, Spain)

15:45 – 16:05 *Physical Virology with atomic force and fluorescence microscopies: exploring the biophysics of individual virus particles*
Pedro J. de Pablo (UAM, Madrid)

16:05 – 16:25 *How much force is needed to kill a single bacterium?*
Cristina Flors (IMDEA-Nanociencia, Madrid)

16:25 – 16:45 *Structural analysis of single-stranded RNA molecules using Atomic Force Microscopy*
Eva M. Martin (CNB-CSIC, Madrid)

16:45 – 17:05 *Nanorheology and Nanoindentation Revealed a Softening and an Increased Viscous Fluidity of Adherent Mammalian Cells upon Increasing the Frequency*
Victor G. Gisbert (ICMM, Madrid)

17:05 – 17:25 *Bridging the scales in DNA flexibility from nucleotides to single-molecule techniques via molecular simulations*
Salvatore Assenza (UAM, Madrid)

17:25 **Closing and farewell**

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The Moreno-Herrero Lab
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