The **Nanobiosensors School** aims to provide a comprehensive overview of the latest advances in the field of nanobiosensors, emphasizing innovative technologies and practical applications. The school offers participants the opportunity to engage with leading researchers and gain hands-on experience in biosensing methodologies. Through a series of lectures, attendees will explore cutting-edge developments in nanomaterials, biosensor fabrication, and their applications in healthcare and diagnostics.

Objectives:

The primary objectives of the Nanobiosensors School are to:

1. Equip participants with knowledge on current trends in biosensing, including electrochemical and optical sensors.
2. Foster collaboration between academia and industry to accelerate the development and commercialization of biosensing technologies.
3. Provide a platform for early-career researchers to network with established professionals and explore potential avenues for innovation in nanobioelectronics.

The **Nanobiosensors School** is organized by

Prof. Arben Merkoçi, PhD: ICREA Research Professor and Group Leader at ICN2, where he has been pioneering advances in nanobioelectronics and biosensors;

Dr. Marianna Rossetti, PhD: Senior Post Doc researcher at ICN2, specialized in DNA nanotechnology for biosensing applications;

Dr. Daniel Quesada González, PhD: Post Doc researcher at ICN2 with a strong background in product development and nanotechnology.

10:55-11:00 – Arben Merkoçi – Welcome and introduction to Nanobiosensors School

Session 1

Chairman: Massimo Urban

11.00-11.30

How to do a rapid screening of antibiotics using nanoporous membranes

Alfredo de la Escosura-Muñiz, PhD, Nanobioanalysis Group, Department of Physical and Analytical Chemistry, University of Oviedo, alfredo.escosura@uniovi.es

11.30 - 12.00

How to make an electrochemical aptasensor based on laser-induced graphene electrodes for Escherichia coli detection

Federico Maria Vivaldi, PhD, Department of Chemistry and Industrial Chemistry, University of Pisa, via Giuseppe Moruzzi 13, 56124 Pisa, Italy, federico.vivaldi@unipi.it

12.00 -12.30

CRISPR/Cas toolbox for biosensing applications: from pathogens to non-nucleic acids detection

Angela Gilda Carota, Department of Chemistry and Industrial Chemistry, University of Pisa, via Giuseppe Moruzzi 13, 56124 Pisa, Italy, angela.carota@phd.unipi.it

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Session 2

Chair: Marianna Rossetti

14.00-14.30

Biological Nanopores: A Tool for Single-Molecule Protein Sensing and Sequencing.

Andrea Bonini, PhD, University of Groningen, Chemical Biology 1, Nijenborgh 7, 9747 AG Groningen, The Netherlands, a.bonini@rug.nl

14.30-15.00

Learning lessons from synthetic biology to develop cell-free biosensors

Simona Ranallo, PhD, Department of Chemistry, University of Rome Tor Vergata, via della Ricerca Scientifica 1, 00133 Roma, Italy simona.ranallo@uniroma2.it

15.00-15.30

Cost-Effective, Rapid, Fabrication of Nanobiosensors: Consumer Inkjet Printing for Scalable Diagnostics

Massimo Urban, ICN2, massimo.urban@icn2.cat

Coffee break

Session 3

Chairman: Alfredo de la Escosura-Muñiz

16.00-16.30

Design of stable fluorescent nanovesicles for bioimaging and sensing

Mariana Kober, PhD, Institute of Materials Science of Barcelona (ICMAB-CSIC), mkober@icmab.es

16.30-17.00

Next-Gen Wearable Sensors: Wireless, Battery-Free Technology Using Bio-Adhesive Membranes

Gabriel Maroli, ICN2

17.00-17.30

The development of biosensor devices from ideation to startup initiatives, including the electrolateral flow immunosensor for stroke monitoring (POC4Triage)

Robert S. Marks, Ben Gurion University