

Seminar Series:

Latest Breakthroughs in Biomedical Engineering Research

Location: DBE Science Lounge, Hegenheimermattweg 167C, 4123 Allschwil

Date & Time: Thursday 05.03.2026 | 16:30 – 17:30

Host: Dr. Valentina Basoli

A Lab Everywhere: Chip, Glove, Box, Tip... What Else?

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Abstract

Recent advances in decentralized diagnostics are redefining where and how we perform analysis. From chips to gloves, from portable boxes to sensor-equipped pipette tips, a new generation of smart devices is enabling laboratory-grade testing directly at the point of need. These platforms, which might be built on paper, polymers, textiles, 3D-printed materials, and hybrid architectures, allow users to evaluate clinical, environmental, and food samples without specialized skills or equipment. Their portability, affordability, and compatibility with complex matrices make them ideal tools for remote or resource-limited contexts. Innovations such as integrated pre-concentration, foldable or reconfigurable designs, and seamless coupling with portable readout systems (e.g., smartphones) are accelerating the shift toward ubiquitous sensing. Applications now span nucleic acids, pathogens, heavy metals, pesticides, and emerging contaminants, highlighting the expanding societal role of decentralized testing. This talk will outline the principles behind these versatile platforms and address the recurring question from non-experts: “Which device should I choose?” The answer remains: it depends—on the analyte, matrix, performance needs, and user context. In a world where anything can become a lab, understanding these choices is key to designing the next wave of accessible, sustainable diagnostics.

Biosketch

Stefano Cinti is an Associate Professor at the Department of Pharmacy, University of Naples “Federico II”. He leads the uninanobiosensors Lab (uninanobiosensors.com) at University of Naples Federico II, and his research interests include the development of electrochemical sensors, portable diagnostics, paper-based devices and nanomaterials.