



University
of Basel

Department of
Biomedical Engineering



Selected research topics in Biomedical Engineering:

The Future of Personalized Medicine: 3D Printing and Patient-Specific Technologies

Location: Biozentrum, Spitalstrasse 41, Basel, Seminar Room U1.197

Date & Time: Monday 11.03.2024 11:15 – 13:00

Paper-based electrochemical (bio)sensors

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Abstract

In the field of (bio)sensors, the use of paper has established a new route considering its several features, including its i) capillary-driven flowing pathways avoiding the use of external pumps, ii) capability to work as a reservoir for storing the reagents, delivering a reagent-free analytical tool, iii) capacity to work without sample treatment, i.e. filtration and dilution, iv) flexibility and foldability, boosting the origami configuration easily without any additional device, vi) feature to work as a reactor to synthesized inside nanomaterials by follow a sustainable approach, vii) ability to detect the target analyte not only in solution but also in aerosol and solid samples without any sampling system, and viii) characteristics to design combined hybrid systems to boost easy analysis, overcoming the ongoing limitation using polyester-based printed electrochemical (bio)sensors. In this lecture, I will report on the last effort in my group to develop eco-designed printed (bio)sensors with improved analytical features and unprecedented applications, including the ones in collaboration with companies.

Biosketch

Fabiana Arduini is a Full Professor at Department of Chemical Science and Technologies, University of Rome "Tor Vergata", founder of start-up SENSE4MED, DG at ISO9001 Certified Laboratory LabCap, University of Rome "Tor Vergata", Editor of Green Analytical Chemistry Journal, Elsevier, Associated Editor of Microchemical Journal, Elsevier, Specialty Chief Editor Micro- and Nano- Sensors, Frontiers in Sensors, one of the seven relevant scientists selected by Italian Ministry of Defense for studies on depleted uranium, and Coordinator of Italian Sensor Group, Italian Chemical Society 2019-2021. Her research activity deals with the development of miniaturised electrochemical devices mainly using screen-printed electrodes modified with nanomaterials and paper-based analytical tools applied in environmental, biomedical, agrifood, and defense sectors, with over 150 articles published in peer-review journals, H index 56, Scopus source, > 5 patents, coordinators of several national/international projects including Horizon Europe Pathfinder project Phoenix-OoC (March 2024- February 2027). Her name is listed in the top 2% of most cited researchers in the world.