

## Curriculum Vitae

**Ilaria Palchetti**

*Associate Professor of Analytical Chemistry at the "Ugo Schiff" Chemistry Department  
of the Università degli Studi di Firenze, Italy.*

### EDUCATION

- 1999: PhD in Environmental Sciences from Università degli Studi di Firenze, Italy  
Advisor: Prof. Marco Mascini (Università degli Studi di Firenze, Italy)  
Prof. A.P.F. Turner (Cranfield University, UK)  
Diploma thesis on electrode materials for developing mercury-free electroanalytical methods for the determination of heavy metals in environmental matrices.
- 1994: Master's degree in Chemistry and Pharmaceutical Technology from the University of Florence  
Advisor: Prof Marco Mascini.  
Diploma thesis on enzyme-modified electrodes for pesticide monitoring.

### PROFESSIONAL EXPERIENCE

- 2023-present Coordinator of the Master's degree course in Advanced Molecular Science, Università degli Studi di Firenze, Italy
- 2022-present Deputy Head of the Department of Chemistry Ugo Schiff, Università degli Studi di Firenze, Italy
- 2015-present Associate Professor of Analytical Chemistry at the "Ugo Schiff" Chemistry Department of the Università degli Studi di Firenze, Italy
- 2014 National scientific qualification to perform the duties of Full Professor in Analytical Chemistry
- 2002-2015 Researcher, Università degli Studi di Firenze, Italy
- 1999-2000 Post-doc, Università degli Studi di Firenze, Italy
- 1998, European Science Foundation (Artificial Biosensing Interface program) Visiting Scholar at Cranfield University (Supervisor: Prof. A.P.F. Turner)
- 1996, Erasmus FREEMOVER Visiting Scholar at Cranfield University (Supervisor: Prof. A.P.F. Turner)

### RESEARCH INTERESTS

My research activity focuses on applications of analytical chemistry in the fields of sensing and biosensing. While most of the research activity employs electrochemical and photoelectrochemical techniques, my group always explores new technologies to address pressing bioanalytical issues. One major area of interest is the characterization of novel natural and synthetic biomolecular recognition systems for bioelectrochemistry and the development of novel bioanalytical approaches for the determination of biomarkers, nucleic acids, proteins, and small molecules. Another major research focus is the characterization of innovative electrode materials for the development of innovative electroanalytical sensors. Furthermore, a recent area of interest has been the characterization of electrified biointerfaces and solid-supported membrane electrodes for studying membrane proteins and drug-protein interactions. In this research context, I have been, and I currently am Principal Investigator or Research Group Leader of different research projects, granted by national or international organizations.

I am the author of > 170 scientific papers (Orcid: 0000-0001-9366-0574) and co-inventor of patented devices.

## SELECTED RECENT PUBLICATIONS

- Quadrini L., Orlandini S., Laschi S., Ciccone C., Catelani F., Palchetti I., Development of a flow biocatalytic-based platform for electrochemical monitoring of urea in wastewater, *Talanta*, 2025, 289, 127755, 10.1016/j.talanta.2025.127755
- Baumgart, A., Le, D.T., Cranfield, C.G., Bridge S., Zerlotti R., Palchetti I., Tadini-Buoninsegni, F., Clarke, R.J. Membrane Binding of Hydrophobic Ions: Application of New Kinetic Techniques, *Langmuir*, 2025, 41(12), 8081–8091, doi: 10.1021/acs.langmuir.4c04779
- Giacomazzo, G.E., Mulas, G., Palchetti, I., Conti L., Tadini-Buoninsegni, F., Valtanvoli B., Cencetti, F., Giorgi, C. Photodynamic Inactivation of the Sarcoplasmic Reticulum  $\text{Ca}^{2+}$ -ATPase by a Ruthenium Polypyridyl Complex Featuring  $\pi$ -Expansive Ligands, *Bioinorganic Chemistry and Applications* 2025 (1), 8899727, doi: 10.1155/bca/8899727
- Sfragano, P.S., Laschi, S., Vischio, F., Curri L., Ingrosso, C., Palchetti, I. Sustainable hybrid nanocomposites of Au nanoparticles modified carboxylated nanographene oxide: Electrochemical characterisation and estrone detection, *Microchemical Journal*, 2024, 207, 112145, doi: 10.1016/j.microc.2024.112145
- Vitale, I.A., Fuochi, N., Martella, D., Parmeggiani C., Marrazza, G., Palchetti, I. Skin-contact wearable electrochemical biosensing tools: A perspective for the wellbeing of neurological patients, *Trac Trends in Analytical Chemistry*, 2024, 180, 117965, doi: 10.1016/j.trac.2024.117965
- Laschi S., Sfragano P.S., Tadini-Buoninsegni F., Guigues N., Palchetti, I., Development of a flow system for decentralized electrochemical analysis of heavy metals using screen-printed electrodes: the importance of sensor stability, *Analyst* 2024, 149(16), 4239–4249, doi: 10.1039/d4an00616j
- Quadrini L., Salvadori, E., Laschi, S., Cagnini A., Palchetti I., Characterization of corrosion products on contemporary bronze artwork by using voltammetry of microparticles and PCA, *Microchemical Journal* 2024, 200, 110330, doi: 10.1016/j.microc.2024.110330
- Quadrini L., Laschi S., Ciccone C., Catelani F., Palchetti I., Electrochemical methods for the determination of urea: Current trends and future perspective *TrAC - Trends in Analytical Chemistry*, (2023), 168, 117345, doi: 10.1016/j.trac.2023.117345
- Sfragano P.S., Palchetti I., Tadini-Buoninsegni F., A bioelectrochemical approach based on a solid supported membrane to evaluate the effect of natural products on  $\text{Ca}^{2+}$ -ATPase: The case of 6-gingerol, *Electrochimica Acta*, (2023), 458, 142515, doi: 10.1016/j.electacta.2023.142515
- Sfragano P.S., Pillozzi S., Condorelli G., Palchetti I., Practical tips and new trends in electrochemical biosensing of cancer-related extracellular vesicles, *Analytical and Bioanalytical Chemistry*, (2023), 415(6), 1087–1106
- Verrucchi M., Giacomazzo G.E., Sfragano P.S., Laschi S., Conti L., Pagliai M., Gellini C., Ricci M., Ravera E., Valtanvoli B., Giorgi C., Palchetti I. Characterization of a Ruthenium(II) Complex in Singlet Oxygen-Mediated Photoelectrochemical Sensing, *Langmuir*, (2023), 39(1), pp. 679–689, doi: 10.1021/acs.langmuir.2c03042
- Moro G., Sfragano P.S., Ghirardo J., Mazzocato Y., Angelini A., Palchetti I., Polo, F., Bicyclic peptide-based assay for uPA cancer biomarker, *Biosensors and Bioelectronics*, (2022), 213, 114477, doi: 10.1016/j.bios.2022.114477
- Sfragano P.S., Laschi S., Renai L., Fichera M., Del Bubba M., Palchetti I. Electrochemical sensors based on sewage sludge-derived biochar for the analysis of anthocyanins in berry fruits, *Analytical and Bioanalytical Chemistry*, (2022) doi: 10.1007/s00216-022-04062-y
- Bettazzi F., Ingrosso C., Sfragano P.S., Pifferi V., Falciola L., Curri ML, Palchetti I., Gold nanoparticles modified graphene platforms for highly sensitive electrochemical detection of vitamin C in infant food and formulae, *Food Chemistry* (2021), 344, 128692 doi.org/10.1016/j.foodchem.2020.128692
- Bettazzi F., Orlandini S., Zhang L., Laschi S., Nilsen M., Krolicka A., Baussant T., Palchetti I., A simple and selective electrochemical magneto-assay for sea lice eDNA detection developed with a Quality by Design approach, *Science of The Total Environment* 2021, 791, 148111, <https://doi.org/10.1016/j.scitotenv.2021.148111>
- Sordi G., Goti A., Young H.S., Palchetti I., Tadini-Buoninsegni F., Stimulation of  $\text{Ca}^{2+}$ -ATPase Transport Activity by a Small-Molecule Drug, *ChemMedChem*, 2021, 16(21), 3293–3299

## MEMBERSHIP AND ACTIVITIES IN PROFESSIONAL SOCIETIES

*I am a member of the Bioelectrochemical Society (BES), of the International Society of Electrochemistry (ISE), of the Italian Chemistry Society (SCI), RSC, and ACS. I served as Chair of Division 2 (Bioelectrochemistry) of ISE. I am among the founders of the Sensor Group (Gruppo Interdivisionale Sensori) of the SCI and I was a member of the scientific committee of the Bioanalysis Group (Gruppo Divisionale di Bioanalitica) of the SCI. I was and I still am a co-organizer of several national and international conferences and symposia, including the XXIX International Symposium on Bioelectrochemistry and Bioenergetics of BES, 21-25th of June 2026 - Bari, Italy.*