Matteo Sensi
Curriculum vitae (updated on July 24, 2023)

RTDa CHIM/03 (Inorganic Chemistry)
Department of Life Sciences, University of Modena and Reggio Emilia
Date of birth: 28/04/1988.

Contacts
Via Campi 103, 41125 Modena, Italy
Mail: matteo.sensi@unimore.it

Education:

2014 – 2017

- **Ph.D. in Chemical Sciences, double degree in joint supervision between University of Aix-Marseille, France and University of Milano-Bicocca, Italy.**
  Defended on 08/11/2017
  Thesis title: *Direct electrochemistry and photochemistry of FeFe hydrogenases.*
  Supervisors: Dr. Christophe Léger (Directeur de recherche CNRS) e Prof. Luca De Gioia (Full Professor at Unimib).
  A*Midex funding: Académie d'Excellence, Aix-Marseille Université (FR)

2011 – 2014

- **M.Sc. Industrial biotechnologies, University of Milano-Bicocca, Italy.**
  Thesis title: *Computational study of the stereoeletronic and catalytic properties of the enzyme CODH*.
  Internship: 12 months in the Molecular Modelling lab

2007 – 2011

- **B.Sc. Biotechnology, University of Milano-Bicocca, Italy**
  Thesis title: *Molecular dynamics studies of enzymes involved in the SUMO pathway: allosteric regulation mechanism mediated by the E3 ligase enzyme RANBP2*.
  Internship: 3 months in the Molecular Modelling lab

Academic experience:

01/01/2022 – present

- **Researcher (RTDa)** in Inorganic Chemistry.
  The research activity is carried out in the Laboratory of organic electronics, directed by Prof. Fabio Biscarini and Prof. Carlo Augusto Bortolotti. The research aims to develop bio and chemosensors for food freshness based on electrolyte gated organic transistors.
  Teaching activity: laboratory of inorganic chemistry for the bachelor's students of Biotechnology and Biological sciences, laboratory of biomaterials for medical industry for the master's students in Industrial Biotechnologies (total of 72 hours).

01/04/2021 – 31/012/2021

- **Post-Doctoral fellowship** grant from Fondazione Veronesi for the project "An Organic Electronic Biosensor for patients stratification through alternative splicing signature".
  Hosted by UNIMORE, in the Laboratory of organic electronics, directed by Prof. Fabio Biscarini and Prof. Carlo Augusto Bortolotti.

16/11/2019 – 15/04/2021

- **Senior Post-doc** at the University of Modena and Reggio-Emilia, Italy.
  Laboratory of organic electronics, directed by Prof. Fabio Biscarini
  and Prof. Carlo Augusto Bortolotti. Funding: Euronanomed III – AMI "Antidrug-Antibody and Drug Molecular Detection In Inflammatory Diseases With Organic Electronics Platform".

29/07–31/08/2019

- **Collaborator** at the University of Modena and Reggio-Emilia, Italy.
  Laboratory of organic electronics, directed by Prof. Fabio Biscarini
  and Prof. Carlo Augusto Bortolotti. Funding project PRODE.

01/06/2018 – 31/05/2019

- **Junior Post-doc** at the University of Modena and Reggio-Emilia, Italy.
  Laboratory of organic electronics, directed by Prof. Fabio Biscarini
  and Prof. Carlo Augusto Bortolotti. Funding: FAR 2017, "Deciphering immune response to checkpoints inhibitors and finding novel biomarkers in melanoma".

National Scientific Habilitation

- ASN 03/B1 - CHIM/03 from 06/02/2023 to 06/

Projects

- PI of the IscraC project NeuroPeP at Cineca HPC center
- Borsa Veronesi Post-doctoral fellowship 2021
- Team member of EuronanomedIII "Antidrug-Antibody and Drug Molecular Detection In Inflammatory Diseases With Organic Electronics Platform" (AMI)" project

Scientific Production

- 20 papers on peer-reviewed international journals,
- H-index = 14 (Scopus)
- Total citations = 430 (Scopus)

Publications

- Sensi, M., de Oliveira, R. F., Berto, M., Palmieri, M., Ruini, E., Livio, P. A., Conti, A., Pinti, M., Salvarani, C., Cossarizza, A., Cabot, J. M., Ricart, J., Casalini, S., González-García, M. B., Fanjul-Bolado, P., Bortolotti, C. A., Samorì, P., Biscarini, F., Reduced Graphene Oxide Electrolyte-Gated Transistor Immunosensor with Highly Selective Multiparametric Detection of Anti-Drug Antibodies. Adv. Mater. 2023, 2211352.

- Sensi, M.; Migatti, G.; Beni, V.; D'Alvise, T. M.; Weil, T.; Berto, M.; Greco, P.; Imbriano, C.; Biscarini, F.; Bortolotti, C. A. Monitoring DNA Hybridization with Organic Electrochemical Transistors Functionalized with Polydopamine. Macromol. Mater. Eng. 2022, 307 (5), 2100880.
- Manco Urbina, P.; Berto, M.; Greco, P.; Sensi, M.; Borghi, S.; Borsari, M.; Bortolotti, C. A.; Biscarini, F. Physical Insights from Frumkin Isotherm Applied to Electrolyte Gated Organic Transistor as Protein Biosensors. Journal of Materials Chemistry C 2021, 9, 10965-10974.
- Sensi, M.; Baffert, C.; Fourmond, V.; De Gioa, L.; Bertini, L.; Léger, C. Photochemistry and photoinhibition of the H-cluster of FeFe-hydrogenases. Sustainable Energy and Fuels 2021, 5, 4248-4260.
- Selvaraj, M.; Greco, P.; Sensi, M.; Saygin, G. D.; Bellassai, N.; D'Agata, R.; Spoto, G.; Biscarini, F. Label Free Detection of MiRNA-21 with Electrolyte Gated Organic Field Effect Transistors (EGOFETs). Biosensors and Bioelectronics 2021, 182, 113144.
- Berto, M.; di Giosia, M.; Giordani, M.; Sensi, M.; Valle, F.; Alessandrini, A.; Menozzi, C.; Cantelli, A.; Gazzadi, G. C.; Zerbetto, F.; Calvaresi, M.; Biscarini, F.; Bortolotti, C. A. Green Fabrication of (6,5)Carbon Nanotube/Protein Transistor Endowed with Specific Recognition. Advanced Electronic Materials 2021, 7 (5), 200114.
- Sensi, M.; Berto, M.; Gentile, S.; Pinti, M.; Conti, A.; Pellacani, G.; Salvarani, C.; Cossarizza, A.; Bortolotti, C. A.; Biscarini, F. Anti-Drug Antibody Detection with Label-Free Electrolyte-Gated Organic Field-Effect Transistors. Chemical Communications 2021, 57 (3), 367–370.
- Breglia, R.; Arrigoni, F.; Sensi, M.; Greco, C.; Fantucci, P.; Gioia, L. de; Bruschi, M. First-Principles Calculations on Ni,Fe-Containing Carbon Monoxide Dehydrogenases Reveal Key Stereoelectronic Features for Binding and Release of CO 2 to/from the C-Cluster. Inorganic Chemistry 2021, 1 (60), 387–402.
- Galliani, M.; Diacci, C.; Berto, M.; Sensi, M.; Beni, V.; Berggren, M.; Borsari, M.; Simon, D. T.; Biscarini, F.; Bortolotti, C. A. Flexible Printed Organic Electrochemical Transistors for the Detection of Uric Acid in Artificial Wound Exudate. Advanced Materials Interfaces 2020, 7, 2001218.
- Parkula, V., Berto, M., Diacci, C., Patrahau, B., Di Lauro, M., Kovtun, A., Liscio, A., Sensi, M., Samorì, P., Greco, P., Bortolotti, C.A., Biscarini, F. Harnessing selectivity and sensitivity in electronic biosensing: a novel lab-on-chip multigate organic transistor. Analytical Chemistry 2020, 92 (13), 9330-9337.
- Giordani, M., Sensi, M., Berto, M., Di Lauro, M., Bortolotti, C.A., Gomes, H.L., Zoli, M., Zerbetto, F., Fadiga, L., Biscarini, F. Neuromorphic Organic Devices that Specifically Discriminate Dopamine from Its Metabolites by Nonspecific Interactions. Advanced Functional Materials 2020, 2002141, 1–13.
- Sensi, M.; Berto, M.; Candini, A.; Liscio, A.; Cossarizza, A.; Beni, V.; Biscarini, F.; Bortolotti, C. A. Modulating the Faradic Operation of All-Printed Organic Electrochemical Transistors by Facile in Situ Modification of the Gate Electrode. ACS Omega 2019, 4, 5374–5381.
- Berto, M.; Vecchi, E.; Baiamonte, L.; Condò, C.; Sensi, M.; Di Lauro, M.; Sola, M.; De Stradis, A.; Biscarini, F.; Minafra, A.; Bortolotti, C. A. Label Free Detection of Plant Viruses with Organic Transistor Biosensors. Sensors and Actuators B Chemical 2019, 281, 150–156.
- del Barrio, M.; Sensi, M.; Fradale, L.; Bruschi, M.; Greco, C.; de Gioia, L.; Bertini, L.; Fourmond, V.; Léger, C. Interaction of the H-Cluster of FeFe Hydrogenase with Halides. Journal of the American Chemical Society 2018, 140 (16), 5485–5492.
- del Barrio, M.; Sensi, M.; Orain, C.; Baffert, C.; Dementin, S.; Fourmond, V.; Léger, C. Electrochemical Investigations of Hydrogenases and Other Enzymes That Produce and Use Solar Fuels. Accounts of Chemical Research 2018, 51 (3), 769–777.

- Sensi, M.; Baffert, C.; Fradale, L.; Gauquelin, C.; Soucaille, P.; Meynial-Salles, I.; Bottin, H.; De Gioia, L.; Bruschi, M.; Fourmond, V.; Léger, C. and Bertini, L. Photoinhibition of FeFe Hydrogenase. ACS Catalysis 2017, 7 (10), 7378–7387.
- Sensi, M.; del Barrio, M.; Baffert, C.; Fourmond, V.; Léger, C. New Perspectives in Hydrogenase Direct Electrochemistry. Current Opinion in Electrochemistry 2017, 5 (1), 135–145.
- Kubas, A.; Orain, C.; De Sancho, D.; Saujet, L.; Sensi, M.; Gauquelin, C.; Meynial-Salles, I.; Soucaille, P.; Bottin, H.; Baffert, C.; Fourmond, V.; Best, R.B.; Blumberger, J. and Léger, C. Mechanism of O2 Diffusion and Reduction in FeFe Hydrogenases. Nature Chemistry 2017, 9, 88–95.
- Sensi M.; Baffert, C.; Greco, C.; Caserta, G.; Gauquelin, C.; Saujet, L.; Fontecave, M.; Roy, S.; Artero, V.; Soucaille, P.; Meynial-Salles, I.; Hervé, B.; de Gioia, L.; Fourmond,V.; Léger, C.; Bertini, L. Reactivity of the Excited States of the H-Cluster of FeFe Hydrogenases. Journal of the American Chemical Society 2016, 138 (41), 13612–13618.

Book chapters

- Bortolotti, C. A., Berto, M., Sensi, M., Di Lauro, M. & Biscarini, F. Biosensing with Electrolyte Gated Organic Field Effect Transistors. In Materials Research Foundations 56, 71–96 (Materials Research Forum LLC, 2019).

Awards

- Prix de thése 2018 at Aix-Marseille University, award for the best PhD thesis.

Posters and Talks

- 7 poster presentations at national and international congresses
- 15 oral presentations at national and international congresses
- Invited speaker at "3rd International Electronic Conference on Biosensors", 8–21 May 2023

Participation to workshops and schools:

- ECOSTBIO scientific workshop, 12-13/01/2015, St. Jérôme University and Amphitheatre Pharo, Aix-Marseille Université, France.
- Cyclic Voltammetry International School, 23-27/05/2016, Université Paris Diderot, Paris, France.
- Orbitaly 2019, 17-19/10/2018, Center for Nano Science and Technology, Milan, Italy.

Reviewing and editorial activity

- Reviewer for Elsevier: Life Sciences and Biotechnology Letters.
- Reviewer for ACS Applied Materials & Interfaces.
- Reviewer for MDPI journals (Biosensors, Sensors, Diagnostics, Symmetry, Materials, Chemosensors).
- Special issue guest editor fot MDPI Biosensors: "Current Advance in Transistor-Based Biosensors for Diagnostics"

Students supervision

- 4 bachelor's degree students (Biotechnology degree)
- 3 master's degree students (Industrial Biotechnology degree)

Scientific dissemination

- Research corner at Unimore Orienta
- Lesson in High School about the researcher activity (Ricercatori in Classe, Fondazione Umberto Veronesi).