

Associate Professor FEDERICO ROSSI

Department of Physical, Earth and Environmental Sciences, University of Siena, Siena, Italy.

Professional Experience

2018 - ... Associate Professor in Physical Chemistry (CHIM/02)

2012 – 2018 Assistant professor in Environmental Chemistry (CHIM/12) at the Chemistry and Biology Department, University of Salerno, Italy.

2009 – 2012 Marie Curie Fellow at Brandeis University, Waltham (MA, USA) and University of Siena, Department of Chemistry and Biosystems

2006 – 2009 Post-Doc at the Chemistry Department, University of Palermo, Italy.

Education

2003 – 2006

PhD (cum laude)

University of Siena (Italy). Supervisor: Prof. Enzo Tiezzi

- Nonlinear dynamics. Chemical oscillators. Thermodynamics of far-from-equilibrium systems. Environmental chemistry. Spectroscopic analysis of polluted soils, waters and sediments. Title of the Thesis: "On the dynamics of pattern formation in biomimetic systems"

1995 – 2003

Master Degree, MSc. (cum laude)

University of Siena (Italy). Supervisor: Prof. Enzo Tiezzi

- Nonlinear dynamics. Chemical oscillators. Thermodynamics of far-from-equilibrium systems. Title of the Thesis: "Effect of the electrolytes on the chaotic transient of the Belousov-Zhabotinsky Reaction"

Awards and recognitions

2004 – Prigogine Award Special mention

2009 – 2011 Marie Curie Fellow

2017 – Grant for Fundamental Research, Law 11/12/2016 n.232/295-302 –MIUR.

Grants

2015 – Pollutants diffusion in aqueous matrices (ORSA158121), University of Salerno.

2016 – Catalytic oxidation of halogenated solvents (ORSA167988), University of Salerno.

2017 – Nitrogen compounds reduction from wastewater (ORSA174250), University of Salerno.

2017 – FAABR Italian National Research minister grant for outstanding researchers

2021 – "Stimuli-responsive Synthetic Cells for Drug Delivery Applications", University of Siena.

2022 – "Gene Therapy and Drugs based on RNA Technology" Spoke 5 – PNRR CN3

2022 – "Tuscany Health Ecosystem" Spoke 4 – PNRR Ecosystems

2023 – "Smart Artificial Cells for Health Applications" – PRIN 2021

2024 – "ComeInCell" European MC-ITN

Participation in research networks as Principal Investigator

2021 – ... Participation in WG1 and WG3 of COST Action CA21169 Dynalife

2018 – 2022 Participation in WG1 (Morphology and Nanocharacterization) of COST Action CA17120 Chemobrionics.

2013 – 2017 Participation in WG3 (Compartmentalization) of COST Action CM1304 on Emergence and Evolution of Complex Chemical Systems.

Organization of conferences

2004: Member of the steering committee: VIII National Conference of the Environmental and Cultural Heritage Italian Society, Colle di Val d'Elsa (Siena), 8-11 June.

2015: Co-Chair: IV National School of the Environmental and Cultural Heritage Italian Society, University of Salerno, 13 –16 July.

2015: Co-Chair: WIVACE 2015: the Workshop on Artificial Life, Evolutionary Computation and System Chemistry, University of Bari, 23 – 25 Settembre.

2015: Co-Chair: WG COST MEETING, Action CM1304 Biomimetic compartmentalized chemical systems, 25 – 26 September.

2016: Co-Chair: WIVACE 2016: the Workshop on Artificial Life, Evolutionary Computation and System Chemistry, University of Salerno, 4 – 7 October.

2016: Co-Chair: BIONAM 2016: II Workshop on bio-nanomaterials, University of Salerno, 4 – 7 October.

2019: Co-Chair: 1st Italian Systems Chemistry Gathering, University of Florence, 26 July.

2019: Co-Chair: BIONAM 2019: III Workshop on bio-nanomaterials, University of Siena, 16 – 19 October.

2020: Co-Chair: VI National School of the Environmental and Cultural Heritage Italian Society, University of Siena, 3 – 6 February.

2022: Co-Chair: 2nd Italian Systems Chemistry Gathering, virtual event, 11 February.

2023: WS-Organizer: Dynamics Days Europe 2023, Napoli, 5 – 8 September.

2023: Co-Chair: 3rd Italian Systems Chemistry Gathering, SCI headquarter, Rome, 25 September.

Local Institutional activities

2022 – ... Chair of the Science Library committee of the University of Siena.

2018 – ... Responsible for the PLS (divulgation of scientific culture) project in Environmental Science of the University of Siena.

2015 – 2018 Responsible for the Erasmus project of the Chemistry and Biology Department of the University of Salerno.

Editorial activity

2017 – ... International advisory board member Nature-Springer's book series "*Lecture Notes in Bioengineering*"

2018 – ... Editorial board member, section Physical Chemistry, "*Scientific Reports*"

2020 – ... Editorial board member "*Reactions*"

2021 – ... Editorial Board member "*Frontiers in Materials*"

2004 – ... Reviewer for scientific journals among which Nature Comm., Nature Nanotechnology, JACS, PCCP, JPCL, PRL, Sci. Rep., Small, etc.

Outreach activities

2007 – 2008 Commitment to high-school program (PON Projects, Several high schools in Palermo)

2010 – ... Occasional lectures for the general public (Researchers' Night, local initiatives, national radio broadcasts, etc.)

Supervision of graduate students and postdoctoral fellows

2011 Supervision of 1 postdoctoral fellow at the Department of Chemistry and Biosystems, University of Siena, Italy.

2017 Supervision of 1 postdoctoral fellow at the Department of Chemistry and Biology, University of Salerno, Italy.

2022 Supervision of 1 postdoctoral fellow at the Department of Physical, Earth and Environmental Sciences, University of Siena, Italy.

since 2014 Supervision of 5 PhD-students (2 at University of Salerno and 3 at the University of Siena)

since 2007 Supervision of more than 20 Bachelor and more than 10 Master thesis.

Conferences

During his career, Federico Rossi delivered more than 40 presentations. Here it follows the most representative invited talks:

1. "Chaotic Dynamics in the batch unstirred Belousov-Zhabotinsky reaction" at "Non-linéarité, irréversibilité et complexité Interrogations et perspectives dans les sciences de la nature et du vivant." 7 - 8 October 2004, Paris, France.
2. "Chemical Self-organization in self-assembling biomimetic systems" at "Emergence of novelties: the Prigoine legacy" Pacina (SI, Italy), 9 – 16 October 2008
3. "Arsenic Pollution in the Southwest of Tuscany: Monitoring of Cornia Catchment Basin" The Ravage of the Planet 2006. Management of Natural Resources, Sustainable Development and Ecological Hazards. Bariloche (AR), 9 – 16 December 2006.
4. "Cross-diffusion induced convective patterns in micellar systems" XLIV Winter Meeting on Statistical Physics (2015) Mexico City 6 - 9 Gennaio. Invited Keynote Speaker
5. Invited Mentor and discussion leader at the GRC seminars Oscillations and Dynamic Instabilities in Chemical Systems 2016, Stowe, VT, US 16 – 17 July 2016.
6. "Giant Vesicles as Host Reactors for Nonlinear Chemical Reactions" XXXVII Dynamics Days Europe June 5–9, 2017, Szeged, Hungary.
7. "Dynamics of Lipid-stabilize droplets in networks of Belousov Zhabotinsky Micro-oscillators" 5th International Conference on Complex Dynamical Systems and Applications, 4-6 December 2017, Indian Institute of Technology Guwahati, India.
8. "Autonomous Self-Division of Vesicles Driven by Nonlinear Chemical Reactions" (Late Breaking Topic Session) at the GRC seminars Oscillations and Dynamic Instabilities in Chemical Systems 2018, Les Diablerets, CH, 8 – 13 July 2018.
9. "Global dynamics in networks of chemical micro-oscillators", STRUCTAPP2020, L'Aquila (Italy), 23 – 24 February 2020.
10. "Self-Division and Shape Changes of Giant Vesicles Induced by an Internal Chemical Trigger: an Interplay between Osmosis and pH Change", International MaxSynBio Symposium: Avenues towards Artificial Life-like Systems. 30 November – 2 December 2020
11. "Shape Changes and Budding of Giant Vesicles Driven by an Internal Enzymatic Reaction", Build-a-Cell, synthetic cell community virtual seminar, 25 October 2021.
12. "Engineered Giant Vesicles for a Bottom-up approach to Artificial Cells", Reunión de la Red de la Materia Condensada Blanda 2022, Mexico, 1 – 2 December 2022.
13. "Giant vesicles for a bottom-up approach to artificial cells" Workshop: 'Lipothermogel for Therapies and Antibiotic Prophylaxes in Situ' Bari, 11th December 2023.

Publications:

<https://www.scopus.com/authid/detail.uri?authorId=58142973800>