

## CURRICULUM VITAE ET STUDIORUM: ERIKA FERRARI



**Personal data:** Born in Modena (Italy), 08/04/1975  
**Present Position:** Associate Professor in Inorganic Chemistry  
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### EDUCATION

- **July 1999** Master Degree in Chemistry (*summa cum laude*) at the University of Modena and Reggio Emilia with a thesis entitled “Sintesi e Proprietà Ferro-chelanti di Curcuminoidi”, under the supervision of Prof. Romano Grandi.
- **February 2003** PhD in Chemistry the University of Modena and Reggio Emilia with a thesis entitled “Metal Binding of Biomolecules for Pharmaceutical Use”, under the supervision of Prof. Monica Saladini.

### PREVIOUS POSITIONS AND FELLOWSHIPS

- **December 2020 – today** Associate Professor of Inorganic Chemistry at the department of Chemistry (until 2013) and at the Department of Chemical and Geological Sciences (2013-today) of the University of Modena and Reggio Emilia.
- **February 2006 – November 2020** Assistant Professor of Inorganic Chemistry at the department of Chemistry (until 2013) and at the Department of Chemical and Geological Sciences (2013-today) of the University of Modena and Reggio Emilia.
- **June 2003-February 2006** Scientific Technician at the Department of Chemistry of the University of Modena and Reggio Emilia.

### MATERNITY/PARENTAL LEAVES

- **2014** Parental Leave from 07/07/2014 to 22/07/2014 (art. 32 D.Lgs. 151/2001) (D.R. n. 0126 del 31/07/2014).
- **2013** Parental Leave from 01/07/2013 to 12/07/2013 (art. 32 D.Lgs. 151/2001) (D.R. n. 0134 del 18/10/2013).
- **2011-2012** Maternity leave (art. 16 D.Lgs. 151/2001) from 19/08/2011 to 25/01/2012 + Parental leave (art. 32 D.Lgs. 151/2001) dal 26/01/2012 al 10/03/2012 e dal 11/03/2012 al 16/03/2012 – disposto con D.R. n. 074 del 30/03/2012 (**7 months**).
- **2008** Maternity leave (art. 16 D.Lgs. 151/2001) dal 20/03/2008 al 20/08/2008, disposto con D.R. n. 0317 del 29/09/2008 (**5 months**).

### VISITS AND STAYS

- **May 2017** Visiting scientist at the Institute of Nuclear Chemistry of Johannes Gutenberg-Universität Mainz (Mainz, Germany);
- **October 2016** Visiting scientist at the Department of Biophysics of the Institute of Experimental Physics SAS (Košice, Slovakia);
- **February 2008** Visiting scientist at the Institute of Organic and Analytical Chemistry of the Université d'Orléans.

### BRIEF DESCRIPTION OF THE RESEARCH ACTIVITY

The scientific interests of Prof. Ferrari are focused on coordination chemistry, in particular bio-inorganic and inorganic medicinal chemistry; the research covers different aspects showing a strong interdisciplinary approach though maintaining inorganic chemistry as a fundamental pillar around

which developing research activities. Dr Ferrari has expertise in the design and characterization of metal-ligand systems of both natural and synthetic origin.

In particular, the research covers the following topics:

- Metal-based drugs
- Metal trafficking in vitro (thermodynamic characterization of metal complexes in solution)
- Development of novel metal-chelating agents for theranostics
- Development and characterization of iron-based drugs
- Organic, inorganic and metal-organic synthesis
- Development of advanced NMR techniques for complex matrices
- Inorganic Drug Delivery Systems (IDDS)

She is focused on the solution study of metal complexes and on the development of chelators for therapeutic purposes. She is especially keen on solution study, thermodynamic characterization of Metal/ligand systems by means of NMR spectroscopy, potentiometry and UV-Vis spectroscopy of metal-based drugs particularly iron metal complexes. She has deeply exploited NMR techniques such as in the determination of coordinating sites and structure of complex species, often switching the point of view from the ligand to the metal ion, in particular working on <sup>195</sup>Pt, and developing both 1D and 2D methods, titration techniques, dynamic studies, diffusion study on complex macromolecular matrixes such as humic substances, soils, and oxygen-binding heme proteins. Besides, she developed the use of Ga<sup>3+</sup> as NMR probe that resembles Fe<sup>3+</sup> behaviour. She is also an expert in the study of metal trafficking *in vitro* in order to evaluate and predict the efficacy of metal-sequestering agents in relation to metal homeostasis in biological systems.

During the last years, she focused her interests on the synthesis and characterization of naturally occurring molecules, among which Curcumin, with the purpose of biological metals trafficking, in view of therapeutic application, ranging from toxic metals removal to radio-imaging. She recently focused on the design and development of new <sup>68</sup>Ga/<sup>44</sup>Sc-labelled radiotracers for nuclear medicine applications.

## MAJOR COLLABORATIONS

### **National:**

**Mattia Asti** - Nuclear Medicine Unit, Oncology and Advanced Technologies Department - IRRCS – Santa Maria Nuova Reggio Emilia.

**Ornella Francioso** - University of Bologna.

**Carol Imbriano, Maria Cristina Menziani, Maria Giovanna Vezzalini** - University of Modena and Reggio Emilia.

### **International:**

**Sofia Gama** – Univesity of Lisbon

**Raphael Tripier** - Université de Bretagne Occidentale (FR)

**Zuzana Gazova** - Institute of Experimental Physics, Slovak Academy of Sciences, Kosice (SK)

**Hanne Hjorth Tønnesen** – School of Pharmacy – University of Oslo (N)

## FUNDING AND PROJECTS

- **2024-2026** Funding agent: FONDO DI ATENEIO PER LA RICERCA ANNO 2024 (FAR2024)  
Title: Transcriptional reprogramming of lactate metabolism in prostate cancer: druggable vulnerabilities for therapeutic and diagnostic applications. *Role:* Co-investigator; PI: Silvia Belluti (UNIMORE)
- **2011-present** Funding agent: IRRCS –Santa Maria Nuova Reggio Emilia  
Title: PHYTORAD: NUOVE STRATEGIE NELLO SVILUPPO DI RADIOTRACCIANTI (in collaboration with Dr. Mattia ASTI - Nuclear Medicine Unit, Oncology and Advanced Technologies Department - IRRCS – Santa Maria Nuova Reggio Emilia). *Role:* co-PI
- **2016-2019** Funding agent: MIUR (PRIN-2015)

Title: ZAPPING. High-pressure nano-confinement in Zeolites: the Mineral Science know-how APPLIED to engineerING of innovative materials for technological and environmental applications. *Role*: Participant  
PI: Gianmario Martra (UNITO)

- **2016-2018** Funding agent: FONDO DI ATENEO PER LA RICERCA ANNO 2015 (FAR2015)

Title: Rational design of curcumin-based bifunctional ligands for early diagnosis and therapy of Alzheimer's disease. *Role*: Participant; PI: Maria Cristina Menziani (UNIMORE)

- **2017** Funding agent: MIUR (Finanziamento delle attività base di ricerca - art. 1, commi 295 e seguenti, della Legge 11 dicembre 2016). *Role*: PI

- **2015-2017** Funding agent: FONDAZIONE DI VIGNOLA

Title: Diagnosi precoce della malattia di Alzheimer: nuovi agenti diagnostici bi-modali per *imaging*: RAD (radiotracers for Alzheimer's Disease) *Role*: PI

- **2012-2013** Funding agent: FONDAZIONE DI VIGNOLA

Title: Vetri bioattivi: nuovi materiali per il rilascio controllato di antitumorali derivati dalla curcumina. *Role*: Co-investigatore, PI: Gianluca Malavasi (UNIMORE)

## TEACHING ACTIVITIES

- A.A. 2023/24- present "Chimica dei Composti di Coordinazione" (Corso di Laurea Magistrale in Scienze Chimiche - Università di Modena e Reggio Emilia, 6 CFU - 48 h);
- A.A. 2019/20- present "Chimica Generale ed Inorganica" (Corso di Laurea in Chimica - Università di Modena e Reggio Emilia, A.A. 2019/20-2021/22 3 CFU - 36 h Laboratorio; A.A. 2022/23 3CFU - 30h Lezioni frontali);
- A.A. 2019/20- 2021/22 "Chimica Generale e Inorganica" (Corso di Laurea in Chimica e Tecnologia Farmaceutiche - Università di Modena e Reggio Emilia, 9 CFU - 72 h);
- A.A. 2017/18-present "Inorganic Industrial and Environmental Chemistry" (Corso di Laurea in Chimica - Università di Modena e Reggio Emilia, 6 CFU - 48 h; Language: ENGLISH);
- A.A. 2022/23 "Chimica" (Corso di Laurea in Fisica - Università di Modena e Reggio Emilia, 6 CFU - 48 h);
- A.A. 2015/16-2018/19 "Laboratorio di Chimica" (Corso di Laurea in Scienze Naturali - Università di Modena e Reggio Emilia, 1 CFU - 12 h);
- A.A. 2013/14-2016/2017 "Chimica Inorganica Industriale e Ambientale" (Corso di Laurea in Chimica - Università di Modena e Reggio Emilia, 6 CFU - 48 h);
- A.A. 2009/10; 2012/13 "Chimica Generale con elementi di Chimica Inorganica" (Corso di Laurea in Scienze e Tecnologie Erboristiche - Università di Modena e Reggio Emilia, 7 CFU - 56 h); "Introduzione al Laboratorio chimico" (Corso di Laurea in Scienze e Tecnologie Erboristiche - Università di Modena e Reggio Emilia, 2 CFU - 16 h);
- A.A. 2006/07-2008/09 "Elementi di Chimica Generale ed Inorganica" (Corso di Laurea in Tecniche Erboristiche - Università di Modena e Reggio Emilia, 9 CFU - 72 h); "Introduzione al Laboratorio chimico" (Corso di Laurea in Tecniche Erboristiche - Università di Modena e Reggio Emilia, 2 CFU - 16 h)
- A.A. 2006/07-2012/13 "Composti di coordinazione di interesse farmaceutico" (12 h), Teaching activity for PhD students of the Doctorate School "Scienze e tecnologie dei prodotti per la salute" (Università di Modena e Reggio Emilia).
- A.A. 2006/07-2008/09 Lecturer for the SicurMORE project "Formazione a distanza, portale FAD626 (FAD 81)"
- A.A. 2006/07 Lecturer for "Master universitario di I livello in presenza o a distanza Prevenzione dei rischi e gestione della sicurezza del lavoro - Safety Management".
- A.A. 2005/2006 "Chimica Analitica" (Corso di Laurea in Farmacia e CTF - Università di Modena e Reggio Emilia, 5 CFU - 40 h)

## **SUPERVISION OF PhD STUDENTS AND FELLOWSHIPS**

- **2025-present** Supervisor of post-doctoral fellowship Dr Matteo Mari (Project: “Transcriptional reprogramming of lactate metabolism in prostate cancer: druggable vulnerabilities for therapeutic and diagnostic applications”)
- **2023-present** Co-Supervisor of Dr Jennifer Storchi, M3ES PhD Student (XXXIX Cycle) committed to the PhD project “Lead-212 and Titanium-45 as emerging isotopes for radiopharmaceutical applications: production and development of new bifunctional chelators”
- **2022-2024** Supervisor of Dr Matteo Boniburini, M3ES PhD Student (XXXVIII Cycle) committed to the PhD project “Development of new bimodal imaging agents based on Mn(II)”
- **2021-2024** Supervisor of Dr Matteo Mari, M3ES PhD Student (XXXVII Cycle) committed to the project “Development of new PET radiotracers based on monocarboxylate transporter inhibitors for theranostic applications in oncology”
- **2021-2024** Co-Supervisor of Debora Carrozza, M3ES PhD Student involved in the project “Development of hybrid bio-materials for theranostic applications”
- **2021** Supervisor of post-graduated fellowship, Dr Debora Carrozza, working on a project entitled “Development of iron-citrate metal complexes for therapeutic applications”.
- **2017-2018** Supervisor of post-doctoral fellowship (Dr Luca Rigamonti) working on a project entitled “Development of curcumin-based radiotracers for nuclear medicine applications”.
- **2015-2018** Supervisor of PhD Student, Dr Giulia Orteca working on a thesis “New smart materials for metal trafficking control.”
- **2011-2012** Supervisor of post-doctoral fellowship (Dr Maurizio Bonavia) working on a project entitled “Development of radiotracers for nuclear medicine applications”.
- **2010-2012** Co-Supervisor of PhD Student, Dr Ettore Venturi working on the research project: “Sintesi e caratterizzazione di composti beta-dichetonici di interesse farmaceutico”
- **2008-2010** Co-Supervisor of PhD Student, Dr Francesca Pignedoli working on a thesis entitled “Il ruolo della chimica di coordinazione nello sviluppo di potenziali agenti terapeutici derivati dalla Curcumina.”
- **2006-2008** Co-Supervisor of PhD Student, Dr Sandra Lazzari, working on a thesis entitled: “Synthesis, characterization and coordinative properties of new molecules of pharmaceutical interest”

## **AWARDS**

- **2018** National Scientific Enabling (ASN) for the position of Full Professor in the sector **03/B1 (FONDAMENTI DELLE SCIENZE CHIMICHE E SISTEMI INORGANICI)**.
- **2018**: best abstract for oral presentation “VII Congresso Nazionale del Gruppo interdisciplinare di Chimica dei Radiofarmaci (GICR) - Ferrara 11-12 Maggio 2018”.
- **2017**: National Scientific Enabling (ASN) for the position of Associate Professor in the sector **03/B1 (FONDAMENTI DELLE SCIENZE CHIMICHE E SISTEMI INORGANICI)**

## **FACULTY MEMBERSHIPS AND INSTITUTIONAL POSITIONS**

- Member of the Faculty of Doctorate School "**MODELS AND METHODS FOR MATERIAL AND ENVIRONMENTAL SCIENCES – M3ES**" of the University of Modena and Reggio Emilia (from the academic years 2013/2014 to present)
- Quality Management Responsible and President of the Committee for Quality Assurance and Management of the Department of Chemical and Geological Sciences (2020-present)
- Member of the Committee for “Quality Assurance, Management and Review” of M3ES PhD Course (2023 – present)
- Member of the Committee for Education of M3ES PhD Course (2018-2025)
- Representative for the Department of Chemical and Geological Sciences in the Faculty of “Centro Interdipartimentale Grandi Strumenti – C.I.G.S. UNIMORE” (2020-2022)
- Member of the Committee for “Research and Development” of the Department of Chemical and Geological Sciences (2018-2019)

- Member of the Doctorate School "**SCIENZE E TECNOLOGIE DEI PRODOTTI PER LA SALUTE**" of the University of Modena and Reggio Emilia (from the academic years 2006/2007 to 2011/2012)
- Tutor for the Master Degree in *Chimica e Tecnologia Farmaceutiche* (2019-oggi)
- Member of the *Commissione Sviluppo e Ricerca* of DSCG (2018-2019)
- Member of the Web Committee of DSCG (2012-2018)
- Member of the Self-Evaluation Committee of the Pharmacy Faculty (2006-2012)
- Member of the *Commissione Immagine* of the Pharmacy Faculty (2007-2012)
- Tutor for the Degree in *Tecniche Erboristiche* and *Scienze e Tecnologie Erboristiche* (2007-2012)
- Member of the *Commissione per la valutazione delle conoscenze in ingresso e test di ammissione ai corsi di laurea in Farmacia, Chimica e Tecnologia Farmaceutiche* (2008-2012)

## MEMBERSHIPS AND APPOINTMENTS

- Management Committee Substitute and Participant of the **COST ACTION CA 18202 – NECTAR – Network for Equilibria and Chemical Thermodynamics Advanced Research**. (<https://cost-nectar.eu/>)
- PEER Reviewer- Area Chimica (GEV03) – VQR 2011-2014
- REPRISE (albo degli esperti scientifici istituito presso il MIUR) ("Ricerca di Base" 2018-oggi)
- Management Committee of the *Società Chimica Italiana - Sezione Emilia Romagna* (2012-2014)
- Management Committee (Secretary/ Treasurer) of the *Società Chimica Italiana Sezione Emilia Romagna* (2009-2011)
- Member of the Inorganic Chemistry and Nuclear Magnetic Resonance Divisions of the Italian Chemical Society.
- Member of GICR "Gruppo Interdisciplinare di Chimica dei Radiofarmaci".
- Member of the Biogest Siteia Technopole consortium (UNIMORE).
- Member of CRIS - Centro di Ricerca Interdipartimentale sulla Sicurezza e Prevenzione dei Rischi di UNIMORE (2012-)
- Member of CIPRAL - Centro Interdipartimentale di Prevenzione dei Rischi negli Ambienti di Lavoro – UNIMORE (2008-2010)

## ORGANISATION OF SCIENTIFIC MEETINGS AND SCHOOLS

- Scientific committee "Network di Ricerca in Radiochimica: 2° meeting internazionale italiani in sede e italiani all'estero – 21 Marzo 2020"
- Principal Organizer of the PhD school "Introduction to Radiochemistry" (October 2018).
- "Introduction to Radiochemistry" (1-3 Ottobre 2018, Modena).
- XIV Giornata della Chimica dell'Emilia Romagna, Parma – 18 December 2014 (Scientific Committee)
- XIII Giornata della Chimica dell'Emilia Romagna Area della Ricerca del CNR di Bologna - 18 December 2013 (Scientific Committee)
- XII Giornata della Chimica dell'Emilia Romagna - 17 December 2012, Dipartimento di Scienze Chimiche e Farmaceutiche dell'Università di Ferrara (Scientific Committee)
- Celebration of the International Year of Chemistry: "Il concetto di responsabilità: Etica, Chimica, Ambiente" - Modena, 28-30 April 2011 (Organizing Committee).
- X Giornata della Chimica dell'Emilia Romagna – Parma, 26 November 2010 (Scientific Committee)
- IX Giornata della Chimica in Emilia Romagna – Bologna, 4 December 2009 (Scientific Committee)

## ACTIVITIES IN REFERRED SCIENTIFIC JOURNALS.

- *Editorial Board Member for Molecules* (<https://www.mdpi.com/journal/molecules/editors>)
- *Guest-Editor* Special Issue "25th Anniversary of Molecules-Recent Advances in Inorganic Chemistry" [https://www.mdpi.com/journal/molecules/special\\_issues/molecules\\_25th\\_Anniversary\\_of\\_Molecules\\_Inorganic\\_Chemistry](https://www.mdpi.com/journal/molecules/special_issues/molecules_25th_Anniversary_of_Molecules_Inorganic_Chemistry)
- *Guest-Editor* Special Issue "Curcumin" in Molecules journal [http://www.mdpi.com/journal/molecules/special\\_issues/molecules\\_Curcumin2019](http://www.mdpi.com/journal/molecules/special_issues/molecules_Curcumin2019))
- *Reviewer for the peer-reviewed journals*: Journal of Medicinal Chemistry; Inorganic Chemistry; European Journal of Medicinal Chemistry; Dalton Transactions; Molecules; International Journal of

Molecular Sciences; Journal of Inorganic Biochemistry; Journal of Bioinorganic Chemistry; Journal of Nanomaterials; Molecules; Arabian Journal of Chemistry; International Journal of Molecular Structure.

### TECHNOLOGICAL TRANSFER

**2021** ITALIAN PATENT 102021000005132 “Materiale fotoassorbente ad ampio spettro, procedimento per la sua preparazione ed usi relativi” INVENTORS: R. Arletti, G. Vezzalini, A. Zambon, E. Ferrari, R. Fantini, C. Baraldi, L. Mino, M. Fabbiani, R. Cavalli, M. Argenziato, Deposit Date (04/03/21)

**2020** INVENTION PATENT (BREVETTO D’INVENZIONE nr.102018000002279) “Sintesi di derivati della curcumina con un gruppo chelante per la complessazione di metalli e radionuclidi.” Submission date: 31<sup>st</sup> January 2018, Approval date: 17<sup>th</sup> March 2020. Inventors: Mattia Asti, Giulia Orteca, Erika Ferrari, Sara Rubagotti, Michele Iori, Pier Cesare Capponi.

**2011-2013** PROGETTO SPINNER2013 - idea imprenditoriale innovativa e/o ad alto contenuto di conoscenza: BIT4ENERGY (PI: Erika Ferrari)

**2009-2010** PROGETTO SPINNER DI RICERCA INDUSTRIALE: H2STIT (PI: Erika Ferrari)

### PUBLIC ENGAGEMENT

- Proponent and chief of the organizing committee of the “Global Women’s Breakfast @UNIMORE” (<https://iupac.org/gwb/>)
- Lectures for UniJunior (2025-present)
- Participant to the project PLS, leading seminars and laboratory activities for high school students.
- Seminars for high school teachers (2007, 2014, 2017)
- Participant to the project “ACQUA FONTE DI VITA NELLO SPAZIO E NEL TEMPO...” financially supported by the Fondazione Cassa di Risparmio di Modena. Scuola primaria "KING" - ISTITUTO COMPRENSIVO MODENA 3 (November 2015)
- Seminars, laboratorial activities and guided tours during the temporary exhibition: CRISTALLI AI RAGGI X (Modena, 24 January - 29 March 2015).
- Night of the Research (2015-present).

### LIST OF PUBLICATIONS AND CONTRIBUTIONS

Authors of more than 70 papers in peer-reviewed journals and more than 100 contributions (oral and poster) to national and international conferences. Scopus citation overview (04/03/2023) documents 73, citations 2236, h-index 27.

For updated publications visit <https://unimore.unifind.cineca.it/get/person/090199>

Modena, 4<sup>th</sup> March 2026

