

Curriculum Vitae – Elisa Carignani

EDUCATION

2007 Bachelor's Degree in Chemistry at the University of Pisa, 110/110 cum laude

Thesis: "Determinazione dei tensori di *shielding* del ^{13}C e del ^{19}F da spettri NMR in solventi liquido cristallini e da calcoli quanto-meccanici"

supervisor Dr. D. Catalano.

2009 Master's Degree in Chemistry (curriculum in Physical Chemistry) at the University of Pisa, 110/110 cum laude

Thesis: "Studio dei processi dinamici in Ibuprofen mediante tecniche NMR allo Stato Solido"

supervisor Prof. M. Geppi.

2013 PhD in Chemical Sciences University of Pisa

Thesis: "Study of organic molecules in their crystalline phases by Solid State NMR: dynamics and related aspects" supervisor Prof. M. Geppi, advisors Prof. R. K. Harris and Prof. S.P. Brown.

CURRENT POSITION

From December 2021 Researcher at the Institute for the Chemistry of the OrganoMetallic Compounds of the National Research Council of Italy (CNR-ICCOM).

PREVIOUS POSITIONS

2021 Post Doc Researcher at the CNR-ICCOM. Activity: study of innovative perovskites by Solid State NMR (SSNMR).

2018-2020 Post-Doc researcher at the Department of Chemistry and Industrial Chemistry (University of Pisa) DCCI-UniPi. Activity: study of soft matter and nanocomposites by means of NMR spectroscopy and relaxometry.

2017-2018 Post-Doc researcher at CNR-IPCF. Activity: study of polymeric nanocomposites by SSNMR.

2016-2017 Post-Doc researcher at Department of Chemistry - University of Pisa. Activity: study of peptides interaction with model-cell membranes by means of SSNMR.

2015 Annalaura Segre Fellowship assigned by Gruppo Italiano Discussione Risonanze Magnetiche (GIDRM), at CNR-ICCOM.

2014-2015 Post-Doc researcher at Department of Chemistry - University of Pisa. Activity: study of active pharmaceuticals ingredients and innovative pharmaceuticals formulations by means of SSNMR.

2013 Post-Doc research fellow at the School of Chemistry (**University of Southampton**). Activity: study of endohedral-fullerenes by means of NMR at cryogenic temperatures.

ASSOCIATION AND MEMBERSHIP

Italian IUPAC Young Observer from **2021**, **GIDRM** member from **2009**, **INSTM** associate from **2012**, and **SCI** member form **2019**.

MATERNITY LEAVES

RESEARCH INTERESTS

I am a physical chemist specialized in Solid State NMR (SSNMR) spectroscopy, Low Field and Fast Field Cycling NMR relaxometry. My research interests cover a wide range of application fields of NMR, from pharmaceuticals to materials science, from soft phases (liquid crystals, plastic crystals, polymers) to hard matter. In particular, I specialized in the development and application of SSNMR techniques for the characterization of structural and dynamic properties of materials in soft and solid phases aimed on one hand at a deep understanding of fundamental properties for basic research (such as glass transition, molecular dynamics in the solid state) and on the other hand to study new materials with applications in pharmaceuticals and technology. I have skills in experiments and data analysis development using high and low field NMR spectrometers and relaxometers.

PRIZES, AWARDS and PASSED COMPETITIONS

- Winner of the **International Galileo Galilei Prize for Young Researchers** (Premio Galileo Galilei Giovani), assigned by Premio Galilei Foundation of Italian Rotary Clubs and Distretto Rotary 2071 (Tuscany) **2020/2021**
- Winner of the **2018 GIDRM (Italian Association for Magnetic Resonances) Under 35 Award** <http://www.gidrm.org/index.php/activities/under-35-gidrm-award>.
- Winner of the poster competition (3rd place) at the XXXIX National Congress on Magnetic Resonance, Palermo, 21-24/9/2009 (<http://www.gidrm.org/index.php/activities/national-congress/xl-national-congress-parma-2011>).
- CULTORE DELLA MATERIA in Physical Chemistry, Solid State NMR spectroscopy and Advanced Spectroscopic methods, University of Pisa, from 2014 to 2017.
- Classified in the top 10 for "Premio L'Oréal Italia Per le Donne e la Scienza 2014".
- Abilitazione alla Professione di Chimico 2010, University of Pisa.

VISITING RESEARCHER IN FOREIGN INSTITUTIONS

2018 (15-21 April) Prof. Ernst Rössler's research group (Experimentalphysik II, University of Bayreuth, Germany) within the COST Action CA15209 "*European Network on NMR Relaxometry*"

2015 (12-23 October) Institute of Nuclear Physics (Polish Academy of Science) Krakow, Poland.

2011-2012 (1 Nov-30 April) Prof. M. H. Levitt's group, School of Chemistry, Univ. of Southampton, UK. **2010** (12-30 October) Prof. S. P. Brown's SSNMR group, Department of Physics, Univ. of Warwick, UK.

PARTICIPATION TO SCIENTIFIC AND ORGANIZING COMMITTEES OF CONFERENCES

2019 (scientific and organizing) GIDRM workshop "Computational methods and NMR spectroscopy: a powerful synergy for chemistry, materials science and biology", Pisa, 10 December.

2019 (organizing) "Advances in NMR and MS-based Metabolomics 2019", Lucca, 20-22 November.

2019 (organizing) "11th conference on Fast Field Cycling Relaxometry" (international), Pisa, 5-7 June.

2012 (organizing) "XLI National Congress on Magnetic Resonance", Pisa, 17-19 September 2012.

DISSEMINATION AND REVIEWING

2020, 2019 and 2018 Participation to the activity of the DCCI-UniPi for the 2019 and 2018 Bright Night (the European Researchers'night), and contribution to a webinar on nuclear magnetic

resonance at 2020 Bright Night: https://www.youtube.com/watch?v=NWIRVz0I_AI.

2012- Reviewer for PCCP, Mol. Phys., Molecules, Minerals, Int. J. Pharm.

SUPERVISION OF STUDENTS AND TEACHING ACTIVITIES:

2021-2014 Tutor of several Master students in Chemistry (University of Pisa).

2012 Teaching assistant for the laboratory of physical chemistry (DCCI-Unipi)

2014-2017 Member of the examination commission of several classes for the Master's degree in Chemistry (Physical Chemistry) at UNIFI.

PARTICIPATION TO RESEARCH PROJECTS

2021-2018 Project in collaboration with **Pirelli Tyre S.p.A.**, ICCOM-CNR and University of Milano Bicocca, aimed at the development of high-performance nanocomposite polymeric materials (funded by Pirelli Tyre and Regione Toscana-POR FSE 2014-2020 Asse A).

2018-2017 Project **FAR-FAS 2014** co-funded by Regione Toscana, focused on nanostructured materials for sustainable building and energy efficiency, SELFIE Project.

2020-2016 COST Action CA15209: *"European Network on NMR Relaxometry"*.

2010-2012 Project funded by **Cassa di Risparmio di Lucca**, PI: Prof. B. Mennucci (Univ. of Pisa), "A molecular modelling and advanced spectroscopy integrated approach for the study of structure-activity relation of pharmaceuticals in different environments".

PARTICIPATION TO RESEARCH CONTRACTS WITH INDUSTRIES

Participation to contracts between DCCI-Unipi and GSK (USA), PPM Services (CH), Chiesi Farmaceutici (Parma), Indena SpA (Milano).

INVITED LECTURES

2018 (19-21 September) XLVII National Congress on Magnetic Resonance, Torino **2016** (5-7 September) XLV National Congress on Magnetic Resonance, Modena

2015 (10-12 December) II Workshop on Stability of Amorphous Pharmaceuticals, Pisa

CONFERENCES

Coauthor of **53** presentations at conferences, 12 of which invited.

PUBLICATIONS

28 articles published on ISI journals **2** articles on non-ISI national journals **1** book chapter

H index 10 (307 citations - Scopus) ORCID 0000-0001-5848-9966

Autorizzo il Trattamento dei dati personali contenuti nel mio curriculum vitae in base all'Art. 13 del D.Lgs 196/2003 e Art. 13 GDPR 679/16

Pisa, 03/05/2022

Firma