

## Curriculum Vitae

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| Name, Surname    | <b>Martina, Zangari</b>  |
| Affiliation      | University of Bologna, Department of Industrial Chemistry "Toso Montanari"   |
| Present Position | PostDoctoral Research Fellowship   |
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### CURRENT FIELDS OF INTEREST

- Application of Infrared Spectroscopy (micro-FTIR, FTIR nanoscopy and ATR spectroscopy) to biological samples and organic semiconductors;
- Application of Raman Spectroscopy (micro-Raman) to organic semiconductors and molecular crystals;
- Polymorphism in organic semiconductors in bulk crystal systems and thin films.
- Characterization of Organic field effect transistors fabrication
- Development of a method to measure in a safe mode with IR and Raman spectroscopy;
- Morphology characterization through SEM.

### EDUCATION

2020-2023

#### **PhD in Nanotechnology**

Supervisor: Dr. Lisa Vaccari

Institution: Elettra Sincrotrone, Trieste (University of Trieste)

Thesis: On the role played by protein-asbestos fiber interaction in asbestos toxicity: a multi-technique approach from single fiber to cellular milieu (Defense date 9<sup>th</sup> February 2024)

Activities: The study of secondary structure of proteins upon asbestos and vitreous fibers exposure from microscale (micro-FTIR, FTIR-ATR) to nanoscale (nano-IR and HR-TEM).

The study of effects of asbestos and vitreous fibers on *Xenopus laevis* oocytes membranes by two electrode voltage clamp.

2017-2019

#### **Master's Degree in Industrial and Molecular Biotechnology**

Supervisor: Prof. Viviana Orlandi

Institution: University of Insubria

Thesis: Studio delle condizioni di crescita di due ceppi di *Lactococcus lactis* subsp. *lactis* utilizzati in ambito industriale

Activities: RNA and DNA extraction; cells growth and fermentation; UV-Vis

spectroscopy, NanoDrop spectroscopy; Realtime PCR and PCR; solutions and samples preparation; HPLC technique.

2013-2017

### **Bachelor's Degree in Biology Science and Technology**

Supervisor: Prof. Genciana Terova

Institution: University of Insubria

Thesis: Risposta trascrizionale di alcuni geni coinvolti nel metabolismo della metionina in specie ittiche allevate con diete a base di farina di insetto

Activities: RNA and DNA extraction; UV-Vis spectroscopy, NanoDrop spectroscopy; Realtime PCR and PCR; solutions and samples preparation;

## **WORK EXPERIENCE AND TRAINING**

2024-

### **PostDoctoral Research Fellowship**

Title: Lattice dynamics and structure in organic semiconductors by THz spectroscopy

Supervisor: Dr. Tommaso Salzillo

Institution: University of Bologna, Department of Industrial Chemistry "Toso Montanari"

2023- 2024

### **Scholarship of CERIC-ERIC (SISSI-Bio beamline)**

Institution: CERIC-ERIC, Trieste

2020-2023

### **PhD in Nanotechnology**

Supervisor: Dr. Lisa Vaccari

2020-2020

### **HIGH SCHOOL TEACHER**

Institution: Istituto Magenta, Varese

2019-2019

### **STUDENT TRAINING**

Institution: SACCO SRL

2018-2018

### **COLLABORATOR UNIVERSITY OF INSUBRIA**

Institution: University of Insubria

2017-2017

### **STUDENT TRAINING**

Institution: University of Insubria

## **EXPERIMENTAL SKILLS**

**Spectroscopy:**

FTIR microscopy, Infrared nanoscopy, ATR spectroscopy, UV-Vis Spectroscopy.

**Morphology characterization:**

Optical microscopy, Scanning electron microscope (SEM), High Resolution Transmission electron microscope (HR-TEM).

**Chemical and Biological techniques:**

Western Blotting, polymerase chain reaction (PCR), Real-Time PCR (RT-PCR), High-performance liquid chromatography (HPLC), Two electrode voltage clamps, Sodium Dodecyl Sulphate - PolyAcrylamide Gel Electrophoresis (SDS-PAGE).

**Sample preparation:**

Solutions, thin film, tablet, pellet

**In vivo manipulation of animals:**

*Xenopus leavis* (frogs)- OPBA (Organismo preposto al benessere animale) certificate.

**CONFERENCE**

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| 2023 | <b>Un'ora con il ricercatore, Trieste</b><br>Oral Talk : Amianto e proteine una relazione pericolosa  |
| 2023 | <b>Notte dei Ricercatori, Trieste</b><br>Oral Talk : Dalle fibre (di amianto) alla fibrosi: tecniche e strumenti al servizio della biomedicina  |
| 2023 | <b>ICAVS12- 12th International Conference on Advanced Vibrational Spectroscopy, Krakow</b><br><br><u>Poster and Flash Presentation:</u> "FTIR microscopy and nanoscopy analysis of Protein- fiber interaction in asbestos body model assembling". Zangari M., Piccirilli F., Bernarggi A., Zabucchi G. and Vaccari L. |
| 2023 | <b>VISPEC school &amp; conference on Vibrational Spectroscopy, Perugia</b><br><br><u>Oral Talk:</u> "A systematic study of protein-fiber interaction in asbestos body model using FTIR microscopy and IR nanoscopy" Zangari M., Piccirilli F., Bernarggi A., Zabucchi G. and Vaccari L.                               |
| 2022 | <b>XXVI Congresso Nazionale SIBPA, San Miniato, PI</b>  |

Oral Talk: The role played by protein-asbestos fiber interaction in asbestos pathogenicity". Zangari M., Piccirilli F., Bernareggi A., Radu C., Vaccari L. and Zabucchi G.

2022 **19<sup>th</sup> European Conference on the Spectroscopy of Biological Molecules, Reims**

Poster and Flash Presentation: The role played by protein-asbestos fiber interaction in asbestos toxicity". Zangari M., Piccirilli F., Bernareggi A., Zabucchi G. and Vaccari L.

2019 **14<sup>th</sup> edition of the International Symposium on the Genetics of Industrial Microorganisms (GIM 2019), Pisa.**

Poster: A peculiar strain of *lactococcus lactis subsp cremoris* able to use citrate as a carbon source Zangari M., Lorenzi T., Volontè F. and Remelli W.

2019 **14<sup>th</sup> edition of the International Symposium on the Genetics of Industrial Microorganisms (GIM 2019), Pisa.**

Poster: A mutated form of the putative coprohaem decarboxylase hemq increases the oxidative stress in *lactococcus lactis subsp. Lactis*. Zangari M., Remelli W. and Lorenzi T.

## SCHOOLS

2023 **VISPEC school & conference on Vibrational Spectroscopy, Perugia**

Institution: University of Perugia

2020 **HERCULES- Specialized course: the multi-technique approach of CERIC-ERIC as a tool for nanoscience.**

Institution: CERIC- ERIC

2020 **SCHOOL OF SYNCHROTRON RADIATION "GILBERTO VLAIC"**

Institution: Elettra Sincrotrone Trieste

## PUBBLICATIONS

Bernareggi, A., Zangari, M., Constanti, A., Zacchi, P., Borelli, V., Mangogna, A., & Zabucchi G. (2023). Asbestos Fibers Enhance the TMEM16A Channel Activity in Xenopus Oocytes. *Membranes*, 13(2), 180.

Borelli, V., Zangari, M., Bernareggi, A., Bardelli, F., Vita, F., & Zabucchi, G. (2023). Ferruginous bodies exert a strong proinflammatory effect. *Journal of Toxicology and Environmental Health, Part A*, 1-5.

Zangari, M., Borelli, V., Bernareggi, A., & Zabucchi, G. (2023). Asbestos fibers promote iron oxidation and compete with apoferritin enzymatic activity. *Journal of Toxicology and environmental Health, Part A*, 1.

## ALLOCATED PROPOSAL

|      |   |
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| 2023 | Analysis of the interaction between proteins and asbestos fibers<br>Proposal number: 20217169                             |
| 2022 | The study of the asbestos fibers effects on protein involved in iron homeostasis in the cells<br>Proposal number 20227247 |

## PERIOD ABROAD

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| 2023 | Hight Resolution Electron Transmission Microscopy of allocated proposal at National Institute of Materials Physics (Bucharest-Magurele, Romania) |
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## LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s): English Understanding (B2 level)

Speaking (B2 level)

Writing (B2 level)

## OTHER

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| 2022-Now  | Member of Italian society of biophysics (SIBPA)                      |
| 2023-Now  | Member of Italian society of optics and photonics (SIOF)             |
| 2017-2021 | Ambulance Volunteers in Emergency and Urgency (Croce Rossa Italiana) |

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Trieste, 15<sup>th</sup> December 2023