



Mariam Maisuradze

Phone number: (+995) 579997035 (WhatsApp) | **Phone number:** (+39) 0512093659 (Work) | **Email address:**

mariam.maisuradze3@unibo.it | **Website:** <https://www.unibo.it/sitoweb/mariam.maisuradze3> |

Address: Via Piero Gobetti #85 , 40129, Bologna, Italy (Work)

● WORK EXPERIENCE

01/11/2023 – CURRENT Bologna, Italy
RESEARCH FELLOW UNIVERSITY OF BOLOGNA

Prussian Blue Analogues (PBAs) for Post-lithium batteries.

18/05/2023 – 19/06/2023 Bologna, Italy
ASSISTANT OF THE LECTURER UNIVERSITY OF BOLOGNA

Contribution in PhD course "X-Ray Monitoring in Materials Science and in the Environment" through the case study presentation and the laboratory demonstration of X-ray Fluorescence technique.

01/11/2022 – 31/01/2023 Leipzig, Germany
INTERN UNIVERSITY OF LEIPZIG, WILHELM-OSTWALD INSTITUTE

XPS Study of the Ni-doped Manganese Hexacyanoferrate Cathode Material in the Framework of the PhD Thesis.

11/2019 – 07/2020 Bologna, Italy
MASTER THESIS INDUSTRIAL CHEMISTRY DEPARTMENT (CHIMICA INDUSTRIALE "TOSO MONTANARI"), UNIVERSITY OF BOLOGNA

Working on master thesis about "Synthesis and Characterization of Double Metal Hexacyanoferrates" by using laboratory and synchrotron based techniques: XAS (X-ray absorption Spectroscopy), PXRD (Powder X-ray Diffraction), TXM (Transmission X-ray Microscopy), CV (Cyclic Voltammetry), FTIR/ATR (Fourier Transform Infrared Spectroscopy/Attenuated Total Reflectance), TGA (Thermogravimetric Analysis) and MP-AES (Microwave Plasma Atomic Emission Spectroscopy).

14/01/2019 – 01/03/2019 Lille, France
INTERN CNRS; UCCS; UNIVERSITY OF LILLE

Characterization of catalysts with XPS (X-ray Photoelectron Spectroscopy), solid state NMR (Nuclear Magnetic Resonance spectroscopy) and FT-IR/ATR.

02/2018 – 08/2018 Tbilisi, Georgia
LABORATORY EMPLOYEE SMART/ATMOSIM_LAB, TBILISI STATE UNIVERSITY

Air quality analysis in Tbilisi. Sample collection throughout the city. Detection of methane, carbon and nitrogen oxides in the air for both online analysis and collected samples.

04/2016 – 07/2018 Tbilisi, Georgia
LABORATORY ASSISTANT TBILISI STATE UNIVERSITY

Research of enantioseparation, mainly on HPLC (High Performance Liquid Chromatography), also UHPLC (Ultra High Performance Liquid Chromatography). Testing chiral columns, including newly developed uncommercialized ones. Later working on the bachelor thesis and publication on the topic from the same field.

EDUCATION AND TRAINING

01/11/2020 – 20/03/2024 Bologna, Italy
PHD IN CHEMISTRY University of Bologna

Website <https://www.unibo.it/sitoweb/mariam.maisuradze3/en>

09/2019 – 07/2020 Bologna, Italy
MASTER OF SCIENCE IN INDUSTRIAL CHEMISTRY Advanced Spectroscopy in Chemistry – University of Bologna

04/2019 – 09/2019 Leipzig, Germany
MASTER OF SCIENCE IN CHEMISTRY Advanced Spectroscopy in Chemistry – University of Leipzig

09/2018 – 01/2019 Lille, France
MASTER OF SCIENCE IN CHEMISTRY Advanced Spectroscopy in Chemistry – University of Lille

09/2014 – 07/2018 Tbilisi, Georgia
BACHELOR OF SCIENCE IN CHEMISTRY Ivane Javakhishvili Tbilisi State University

JOB-RELATED SKILLS

TXM, XAS; XPS; XRD; XRF (including 2D-XRF); HPLC; CV; GCPL; NMR (including solid NMR); FT-IR; MP-AES; UV-Vis.

PUBLICATIONS

2024
Effect of the preparation conditions of electrospun spinel-structured high-entropy (Mn,Fe,Co,Ni,Zn) oxide nanofibers on lithium storage mechanism

C. Triolo, M. Maisuradze, Y. Liu, M. Li, G. Pagot, A. Ponti, V. Di Noto, G. Aquilanti, N. Pinna, M. Giorgetti, S. Santangelo, *J. Electrochem. Soc.*, (submitted for publication).

2024
[A Partially Ni-substituted MnHCF Cathode Material for Aqueous Zn-ion Batteries: The Electrochemical Performance and the Structural Modification](#)

M. Maisuradze, M. Li, M. Gaboardi, G. Aquilanti, J. R. Plaisier, M. Giorgetti, *Advanced Materials Science and Technology*, 2024, vol. 6, n. 1, 0629615, <https://doi.org/10.37155/2717-526X-0601-2>

2024
[Aging Mechanism of Mn-based Prussian Blue Cathode Material by Synchrotron 2D X-ray Fluorescence](#)

M. Maisuradze, M. Li, . Carlomagno, M. Gaboardi, G. Aquilanti, J. R. Plaisier, M. Giorgetti, *Batteries*, 2024, vol. 10, p. 123, <https://doi.org/10.3390/batteries10040123>

2023
[2D X-ray fluorescence imaging as a probe for charge state distribution of manganese in aged MnHCF-based electrodes](#)

M. Maisuradze, I. Carlomagno, A. Mullaliu, M. Li, G. Aquilanti, M. Giorgetti, *J. Phys. Chem. C*, 2023, vol. 127, n. 44, p. 21498, doi: 10.1021/acs.jpcc.3c06061

2023
[A Structural Perspective on Prussian Blue Analogues for Aqueous Zinc-Ion Batteries](#)

M. Li, M. Maisuradze, R. Sciacca, I. Hasa, M. Giorgetti, *Batter. Supercaps*, 2023, vol. 6, n. 11, p. e202300340, doi: 10.1002/batt.202300340

2023
[Mapping Heterogeneity of Pristine and Aged Li- and Na-Mnhcf Cathode by Synchrotron-Based Energy-Dependent Full Field Transmission X-ray Microscopy](#)

M. Maisuradze, M. Li, A. Mullaliu, A. Sorrentino, D. Tonti, S. Passerini, M. Giorgetti, *Small methods*, Aug. 2023, vol. 7, n. 11, p. 2300718, doi: 10.1002/smt.202300718

2023
[Charge Storage Mechanism in Electrospun Spinel-Structured High-Entropy \(Mn_{0.2}Fe_{0.2}Co_{0.2}Ni_{0.2}Zn_{0.2}\)₃O₄ Oxide Nanofibers as Anode Material for Li-Ion Batteries](#)

C. Triolo, M. Maisuradze, M. Li, Y. Liu, A. Ponti, G. Pagot, V. Di Noto, G. Aquilanti, N. Pinna, M. Giorgetti, S. Santangelo, *Small*, 2023, vol 19, n. 46, p. 2304585, doi: 10.1002/smll.202304585

2023

[Influence of Vacancies in Manganese Hexacyanoferrate Cathode for Organic Na-ion Batteries: A Structural Perspective](#)

M. Li, M. Gaboardi, A. Mullaliu, M. Maisuradze, X. Xue, G. Aquilanti, J. R. Plaisier, S. Passerini, M. Giorgetti M. *ChemSusChem*, Feb. 2023, vol. 16, n. 12, e202300201, doi: 10.1002/cssc.202300201

2023

[Characterization of partially Ni substituted manganese hexacyanoferrate cathode material](#)

M. Maisuradze, M. Li, G. Aquilanti, J. Plaisier, and M. Giorgetti, *Mater Lett*, vol. 330, p. 133259, Jan. 2023, doi: 10.1016/j.matlet.2022.133259

2022

[Easy recovery of Li-ion cathode powders by the use of water-processable binders](#)

A. Brilloni, F. Poli, G. E. Spina, C. Samori, E. Guidi, C. Gualandi, M. Maisuradze, M. Giorgetti F. Soavi, *Electrochim. Acta*, 2022, vol. 418, p. 140376, doi: 10.1016/j.electacta.2022.140376

2022

[Symmetric Aqueous Batteries of Titanium Hexacyanoferrate in Na⁺, K⁺, and Mg²⁺ Media](#)

M. Li, A. Bina, M.; Maisuradze, M. Giorgetti, *Batteries*, 2022, vol. 8, n. 1, p. 1, doi: 10.3390/batteries8010001

2021

[Electrochemical Performance of Manganese Hexacyanoferrate Cathode Material in Aqueous Zn-Ion Battery](#)

M. Li, R. Sciacca, M. Maisuradze, G. Aquilanti, J. R. Plaisier, M. Berrettoni, M. Giorgetti, *Electrochim. Acta*, Dec. 2021, vol. 400, p. 139414, doi: 10.1016/j.electacta.2021.139414

2019

[Chromatographic and thermodynamic comparison of amylose tris\(3-chloro-5-methylphenylcarbamate\) coated or covalently immobilized on silica in high-performance liquid chromatographic separation of the enantiomers of select chiral weak acids](#)

M. Maisuradze, G. Sheklashvili, A. Chokheli, I. Matarashvili, T. Gogatishvili, T. Farkas, B. Chankvetadze, *J Chromatogr A*. 2019, vol. 1602, pp. 228-236, doi: 10.1016/j.chroma.2019.05.026

● CONFERENCES AND SEMINARS

07/02/2024 – 09/02/2024 Sapienza Università di Roma, Piazzale Aldo Moro, #5, 00185, Rome, Italy
Third Italian Workshop on Energy Storage (IWES2024)

M. Maisuradze, M. Li, I. Carlomagno, A. Mullaliu, A. Sorrentino, G. Aquilanti, S. Passerini, D. Tonti, M. Giorgetti, "Inhomogenisation of the charge state distribution in the manganese hexacyanoferrate cathodes in Li/Na-ions batteries: A TXM and 2D-XRF study", *poster*;

M. Li, M. Gaboardi, A. Mullaliu, M. Maisuradze, X. Xue, G. Aquilanti, J. R. Plaisier, S. Passerini, M. Giorgetti "Vacancy influence on manganese hexacyanoferrate Na-ion batteries: structural perspective", *oral presentation*.

Link <https://www.giselnetwork.it/iwes-2024>

29/01/2024 – 31/01/2024 Institut d'Estudis Catalans, Barcelona & ALBA, Carrer del Carme #47, 08001 Barcelona, Spain
LEAPS INNOV Battery Research Forum

A. Sorrentino, L. Simonelli, E. Pereiro, M. Maisuradze, M. Giorgetti, D. Tonti, "Visualizing electrodes chemical states at the nanometer scale using Full Field Soft X-ray Transmission Microscopy at the Mistral beamline", *poster*, (no attendance, only contribution to the presentation);

Link <https://leaps-initiative.eu/event/leaps-innov-battery-research-forum/>

03/09/2023 – 07/09/2023 Goethe University, Westend Campus, Theodor-W.-Adorno-Platz #5, 60323, Frankfurt, Germany
FEMS EUROMAT 2023

C. Triolo, M. Maisuradze, M. Li, Y. Liu, G. Pagot, A. Ponti, V. Di Noto, M. Giorgetti, N. Pinna, S. Santangelo, "Li-ion storage mechanism in spinel-structured high-entropy (Mn,Fe,Co,Ni,Zn) oxide nanofibers as anode material for rechargeable batteries", *oral presentation*.

Note: no attendance, only contribution to the presentation.

Link <https://euromat2023.com/>

30/08/2023 – 01/09/2023 Sapienza Università di Roma, Piazzale Aldo Moro, #5, 00185, Rome, Italy

SILS Conference 2023

M. Maisuradze, M. Li, A. Mullaliu, A. Sorrentino, D. Tonti, S. Passerini, M. Giorgetti, "Investigation of Charge State Heterogeneity Inside MnHCF Cathode Material by Synchrotron-based Transmission Soft X-ray Microscopy", *oral presentation*.

Link <https://www.ba.ic.cnr.it/sils2023/>

13/02/2023 – 17/02/2023 University of Bologna, Via della Beverara, 123/1, 40131, Bologna, BO, Italy

ASC Winter School 2023

Part of "Organizing team";

M. Maisuradze, "Alumnus Presentation", *oral presentation*.

Link <https://site.unibo.it/asc-winter-school2023/it>

09/10/2022 – 13/10/2022 Online

242nd Meeting of the Electrochemical Society (ECS)

M. Maisuradze, M. Li, A. Mullaliu, A. Sorrentino, D. Tonti, S. Passerini, M. Giorgetti, "Post Mortem Microscopical and Selective Analysis of Manganese Hexacyanoferrate Cathode Material by Transmission Soft X-Ray Microscopy", *digital presentation*;

M. Giorgetti, M. Li, M. Maisuradze, R. Sciacca, "Dynamics in Prussian Blue Analogs-Based Batteries Revealed By X-Ray Techniques", *keynote presentation*;

M. Li, R. Sciacca, M. Maisuradze, G. Aquilanti, J. R. Plaisier, M. Berrettoni, M. Giorgetti "Electrochemistry and Structural Study of Manganese Hexacyanoferrate Cathode Material in Aqueous Zn-Ion Battery", *digital presentation*.

Link <https://www.electrochem.org/242>

12/09/2022 – 15/09/2022 University of Trieste, via L. Giorgieri 1, 34127 Trieste, TS, Italy

The 4th Joint AIC-SILS Conference

M. Maisuradze, M. Li, M. Gaboardi, J. R. Plaisier, M. Giorgetti, "Operando and ex-situ PXRD Study of Ni-doped Manganese Hexacyanoferrate Cathode Material in Aqueous Zn-ion Battery System", *oral presentation*;

M. Li, M. Gaboardi, A. Mullaliu, M. Maisuradze, G. Aquilanti, J. R. Plaisier, S. Passerini, M. Giorgetti, "Crystal structure study of manganese hexacyanoferrate cathode material in organic Na-ion battery by using XAS and XRD", *flash presentation*.

Link <https://eventi.mlib.ic.cnr.it/event/33/>

11/06/2022 – 15/06/2022 University of Bologna, DAMS Lab, Piazzetta P. P. Pasolini, 5/b, 40122, Bologna, BO, Italy

The 7th edition of International Symposium on Enhanced Electrochemical Capacitors ISEECap 2022

Part of the "Assistant stuff";

M. Maisuradze, M. Li, M. Gaboardi, J. R. Plaisier, M. Giorgetti, "Operando PXRD Study of Ni-doped Manganese Hexacyanoferrate Cathode Material in Aqueous Zn-ion Battery System", *young scientist presentation*;

M. Li, M. Maisuradze, M. Gaboardi, G. Aquilanti, J. R. Plaisier, M. Giorgetti "Operando synchrotron XAS/XRD Investigation of Zn Insertion into Manganese Hexacyanoferrate Cathode Material," *poster*;

Link <https://eventi.unibo.it/iseecap-2022>

Hands-on Software

Workshop of "Commissione Strumentazione e Calcolo" by Associazione Italiana di Cristallografia (AIC)

Link <https://handsonsoftware.wordpress.com/>

17/12/2021 University of Ferrara, via Luigi Borsari #46, 4412, Ferrara, Italy

XX Giornata della Chimica dell'Emilia Romagna 2021 (GdC-ER 2021)

M. Maisuradze, M. Li, A. Mullaliu, A. Sorrentino, D. Tonti, I. Carlomagno, G. Aquilanti, J. R. Plaisier, S. Passerini, M. Giorgetti, "Using TXM and 2D-XRF for the Identification of inhomogeneous State of Charge in Manganese Hexacyanoferrate Cathode Material," *poster*;

M. Li, M. Maisuradze, A. Bina, A. Mullaliu, S. Passerini, M. Giorgetti, "Electrochemical Study of Titanium Hexacyanoferrate in Organic and Aqueous Batteries," *poster*.

Link <http://scf.unife.it/it/news/xx-giornata-della-chimica-dell2019emilia-romagna-gdc-er-2021>

25/10/2021 – 28/10/2021 Budapest Neutron Center, Konkoly-Thege Miklós street #29–33, 1121, Budapest, Hungary

14th Central European Training School (CETS 2021) on Neutron Techniques - Hands-on Training

Link <https://www.bnc.hu/cets/>

04/10/2021 – 08/10/2021 Online

14th Central European Training School (CETS 2021) on Neutron Techniques - Theoretical Module

M. Maisuradze, M. Li, G. Aquilanti, J. K. Plaisier, M. Giorgetti, "Characterization of Pure and Nickel Doped Manganese Hexacyanoferrate Cathode Materials", *flash presentation*.

Link <https://www.bnc.hu/cets/>

14/09/2021 – 23/09/2021 Online

XXVII Congresso Nazionale della Società Chimica Italiana (SCI2021)

M. Maisuradze, M. Li, A. Mullaliu, A. Sorrentino, D. Tonti, I. Carlomagno, G. Aquilanti, J. R. Plaisier, S. Passerini, M. Giorgetti, "Using TXM and 2D XRF for the identification of inhomogeneous state of charge in Manganese Hexacyanoferrate Cathode Material", *poster*;

M. Li, R. Sciacca, M. Maisuradze, G. Aquilanti, J. Rikkert Plaisier, M. Berrettoni, M. Giorgetti, "XAS study of Manganese Hexacyanoferrate cathode material in aqueous Zn ion batteries at three K metal edges", *oral presentation*.

Link <https://www.sci2020.org/>

21/06/2021 – 23/06/2021 Mixed mode: online/University of Bologna, Via Zamboni #33, 40126, Bologna, Italy

The annual meeting of the Italian Synchrotron Radiation Society (SILS)

Part of local organizing team (LOC);

M. Maisuradze, M. Li, A. Mullaliu, A. Sorrentino, D. Tonti, I. Carlomagno, G. Aquilanti, J. R. Plaisier, S. Passerini, M. Giorgetti, "Identifying inhomogeneous state of charge of Manganese Hexacyanoferrate Cathode Material by Transmission Soft X-Ray Microscopy and 2D X-Ray Fluorescence Spectroscopy", *poster-presentation*.

Link https://www.lucedisincrotrone.it/wp-content/uploads/2021/06/SILS2021_Program.pdf

02/03/2020 – 06/03/2020 University of Helsinki, P.O. Box #64, FI-00014, Helsinki Finland

Winter School "Spectroscopy in Medical Application"

M. Maisuradze, A. Khan, M. Li, M. Giorgetti, "X-Ray Fluorescence (XRF): Sample Size, Thickness and Sensitivity of Powder Samples", *poster*;

A. Khan, M. Maisuradze, M. Li, M. Giorgetti, "Synthesis and Characterization of Defective Mn Hexacyanoferrate and Other Prussian Blue Material", *poster*.

Link <https://wiki.helsinki.fi/display/AW2/ASC+Winter+School+2020>

11/03/2019 – 15/03/2019 University of Leipzig, Johannisallee #29, 04103, Leipzig Germany
Winter School "Spectroscopy in Chemistry – New Techniques and New Applications"

20/08/2018 – 25/08/2018 Tbilisi State University, Ilia Tchavtchavadze Avenue #1, 0179, Tbilisi, Georgia
The 8th Georgian-German School and Workshop in Basic Science (GGSWBS), topic: "Science at multidisciplinary SMART|Labs in Georgia"

M. Maisuradze, A. Chokheli, N. Kobakhidze, N. Khundadze, S. Pantsulaia, T. Khatiashvili, K. Kharashvili, G. Jibuti, B. Chankvetadze, "Contamination Gradient For Air Pollutants In Time", *oral presentation*.

Link <http://collaborations.fz-juelich.de/ikp/cgswhp/cgswhp18/>

09/07/2018 – 13/07/2018 Tbilisi State University, Ilia Tchavtchavadze Avenue #3, 0179, Tbilisi, Georgia
The Sixth Student Conference in Exact and Natural Sciences

M. Maisuradze, G. Sheklashvili, A. Chokheli, T. Gogatishvili, R. Kakava, B. Chankvetadze, "Determination of Thermodynamic Quantities of Enantioseparation of Selected Chiral Weak Acids on Chiralpak IG Column and Its Coated Analogue", *oral presentation*.

Link <http://conference.sens-2018.tsu.ge/page/program/28>

29/12/2017 Tbilisi State University, Ilia Tchavtchavadze Avenue #1, 0179, Tbilisi, Georgia
The 8-th Annual Conference of the Chair of Physical and Analytical Chemistry of Tbilisi State University

M. Maisuradze, G. Sheklashvili, A. Chokheli, S. Pantsulaia, N. Khundadze, R. Kakava, B. Chankvetadze, "Calculation of Thermodynamic Parameters of Enantioseparation Using High-Performance Liquid Chromatography", *oral presentation*.

Link <https://tsu.ge/ka/faculty/320/ზუსტ და საბუნებისმეტყველო მეცნიერებათა ფაკულტეტი/page/ფიზიკური-და-ანალიზური-ქიმიის-მე-8-ფოველწლიური-კონფერენცია>

25/11/2017 Tbilisi State University, Ilia Tchavtchavadze Avenue #3, 0179, Tbilisi, Georgia
77th Student's Scientific Conference in Chemistry Department of Tbilisi State University

M. Maisuradze, G. Sheklashvili, A. Chokheli, R. Kakava, B. Chankvetadze, "Calculation of Thermodynamic Parameters of Enantioseparation Using High-Performance Liquid Chromatography", *oral presentation*.

Link https://www.tsu.ge/data/file_db/PR/programa_28760.pdf

01/11/2017 Georgian National Academy of Science, Rustaveli Ave. #52, 0108, Tbilisi, Georgia
Scientific Conference of Young Chemists

M. Maisuradze, G. Sheklashvili, A. Chokheli, R. Kakava, B. Chankvetadze, "Calculation of Thermodynamic Parameters of Enantioseparation Using High-Performance Liquid Chromatography", *oral presentation*.

Link https://old.tsu.ge/data/file_db/faculty_zust_sabunebismetk/moxsenebebi.pdf

11/09/2017 – 15/09/2017 Forschungszentrum Jülich; Wilhelm-Johnen-Straße, 52428, Jülich, Germany
QUALI-START-UP Science Lectures

Link <https://www.fz-juelich.de/de/aktuelles/news/meldungen/archiv/2017/17-09-14-herbstschule-georgien?expand=translations.fzsettings.nearest-institut>

31/05/2017 Tbilisi State University, Ilia Tchavtchavadze Avenue #3, 0179, Tbilisi, Georgia
5th Georgian Workshop in Chemistry Department of Tbilisi State University

M. Maisuradze, "Positron Emission Tomography", *oral presentation*.

28/12/2016 – 29/12/2016 Tbilisi State University, Ilia Tchavtchavadze Avenue #1, 0179, Tbilisi, Georgia
The 6-th Annual Symposium of the Chair of Physical and Analytical Chemistry at Iv. Javakhishvili Tbilisi State University

M. Maisuradze, G. Sheklashvili, N. Shashviashvili, M.-L. Konlaria, R. Kakava, B. Chankvetadze, "Enantioseparation of chiral sulfoxides using polysaccharide-based chiral columns and polar organic mobile phases", *oral presentation*.

Link https://www.tsu.ge/data/file_db/PR/Program_65579.pdf

14/12/2016 Tbilisi State University, Ilia Tchavtchavadze Avenue #3, 0179, Tbilisi, Georgia

4th Georgian Workshop in Chemistry Department of Tbilisi State University

M. Maisuradze, "Liquid Crystals", *oral presentation*.

12/09/2016 – 16/09/2016 Tbilisi State University, Ilia Tchavtchavadze Avenue #1, 0179, Tbilisi, Georgia

Seasonal School: Chemical and Mathematical Aspects of Environmental (Atmosphere) Monitoring

Link https://old.tsu.ge/data/file_db/faculty_zust_sabunebismetk/Final Program1.pdf

25/05/2016 Tbilisi State University, Ilia Tchavtchavadze Avenue #3, 0179, Tbilisi, Georgia

3rd Georgian Workshop in Chemistry Department of Tbilisi State University

M. Maisuradze, "Organic Additives in Perfume", *oral presentation*.