

Curriculum Vitae

Mauro Coduri graduated in Chemistry in 2009 at the University of Milan in Prof. Scavini's group. He was awarded the PhD in January 2013 working in the same in group, with a thesis entitled "Local disorder in doped ceria: a crystallographic study", investigating the structural disorder induced by doping ceria with rare earth trivalent cations by combining high resolution powder diffraction and total scattering from synchrotron and neutron sources. The thesis has been awarded the price for the best PhD thesis in 2013 from the Italian Association of Crystallography. After one-year postdoc in the same group, Dr. Coduri moved to the CNR-IENI working on intermetallics, mostly superelastic and shape memory materials, gaining experience in the field of materials processing and production. Since January 2016, he moved to the European Synchrotron Radiation Facility (ESRF) in Grenoble, employed as a postdoc at the High Resolution Powder Diffraction beamline (ID22), providing support to external users, managing the daily operation of the beamline and starting international collaborations. Here he deepened the knowledge of structural characterization combining reciprocal space and total scattering methods for standard and in situ experiments.

He joined University of Pavia as postdoc in October 2018, focusing on structural characterization of disordered ionic conductors and novel hybrid perovskites. Since March 2020 he is researcher at the same University, working on high entropy oxides.

The leading wire of the research is the correlation among the physical properties and crystallographic structure of functional materials, combining diffraction-based techniques to explore the atomic structure on different length scales. Author of more than 70 international publications, h-index 18, 940 citations on Scopus.

Dr. Coduri gave some talks to congresses (1 invited) and was invited for 5 seminars in Italian and foreign Universities and research institutions. He was invited as lecturer for three international schools.

He is referee for many international journals (ACS, Elsevier, rsc, mdpi), and he has been guest editor for a special issue published on Nanomaterials (2020). He is local coordinator of a PRIN 2022 project (OPHELIA) dedicated to the development of high entropy cathodes for Na-ion batteries. Mauro Coduri is teaching Physical Chemistry and more classes of Chemistry of Materials to Bachelor and Master students since 2021.

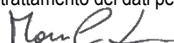
Curriculum Vitae

Personal information

Name/Surname **Mauro Coduri**
E-mail mauro.coduri@unipv.it
Nationality Italian
Date of Birth 26/05/1985

Research interests

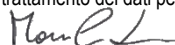
Interplay between local/average structure and physical properties of functional materials (ionic conductors, strongly correlated systems, catalysts, high entropy systems, etc.)



Work experience

Dates	From March 2020 to date
Position	Researcher (type B since March 2022)
Main activities and responsibilities	<ul style="list-style-type: none">- Development and understanding of high entropy systems. Support for advanced structural characterizations.- Teaching Physical Chemistry and Chemistry of Materials to Bachelor and Master students.- Survey and coordination of Master and PhD students.
Employer's name and locality	Università degli Studi di Pavia , dipartimento di chimica , via Taramelli 16, 27100, Pavia (PV)
Dates	From October 2018 to date
Position	Postdoc
Main activities and responsibilities	<ul style="list-style-type: none">- Local and average crystallographic studies on disordered ionic conductors and hybrid perovskites- Identification and quantification of polymorphs in pharmaceuticals.
Employer's name and locality	Università degli Studi di Pavia , dipartimento di chimica , via Taramelli 16, 27100, Pavia (PV)
Advisor	Prof. Lorenzo Malavasi, email: lorenzo.malavasi@unipv.it
Dates	From January 2016 to October 2018
Position	Postdoc at the High Resolution Powder Diffraction beamline ID22 of the ESRF
Main activities and responsibilities	<ul style="list-style-type: none">- Software and instrument maintenance, new detector commissioning- Experiments organization and support to external users- Research on titania-based photocatalysts, strongly correlated systems of the XFe_3O_5 family, complex intermetallics and materials product by additive manufacturing.
Employer's name and locality	European Synchrotron Radiation Facility (ESRF), 71 Avenue des Martyrs, 38100, Grenoble, France.
Advisor	Dr. Andy fitch, email: fitch@esrf.fr
Dates	From March 2014 to December 2016
Position	Postdoc
Main activities and responsibilities	<ul style="list-style-type: none">- Structural characterization of Shape Memory Alloys (CuZr and NiTi-based)- Intermetallics for hydrogen storage- General structural characterization of intermetallic materials
Employer's name and locality	Consiglio Nazionale delle Ricerche (CNR), Istituto per l'ENergetica e le Interfasi (IENI , now ICMATE), Corso Promessi Sposi 29, 23900 Lecco, Italy
Advisor	Dr. Ausonio Tuissi, email: ausonio.tuissi@cnr.it
Dates	From January 2013 to December 2013
Position	Postdoc
Main activities and responsibilities	<ul style="list-style-type: none">- PDF modeling of magnetoelectric perovskites (cobaltites and titanates)- Multiscale modelling of X-ray and Neutron Powder diffraction data of ionic conductors combining Rietveld, Pair Distribution Function and line profile analysis.
Employer's name and locality	Università degli Studi di Milano , Dipartimento di Chimica , Via Golgi 19, 20133 Milan, Italy
Advisor	Dr. Marco Scavini, email: marco.scavini@unimi.it

Education and Training



Qualification awarded	PhD in Chemical Sciences
Date	25 January 2013
Covered subjects and skills acquired	- Synthesis and structural characterization of rare earth doped ceria compounds for application as electrolytes in solid oxide fuel cells: interplay between structure and transport properties - Systematic X-ray and neutron powder diffraction investigations: Rietveld, PDF and microstructure analyses from low temperature to operating conditions - Planning of diffraction experiments, from data collection to data analysis.
Education or training organization's name and locality	Università degli Studi di Milano, Dipartimento di Chimica, Via Golgi 19, 20133 Milan, Italy
Title of the thesis	Local disorder in doped ceria: a crystallographic study http://air.unimi.it/bitstream/2434/215536/2/phd_unimi_R08772.pdf
Qualification awarded	Master's degree in Chemical Sciences
Date	October 2009
Covered subjects and skills acquired	- Synthesis of superconductor oxides - Structural analysis employing Rietveld method and PDF data modeling (see pub. 1)
Education or training organization's name and locality	Università degli Studi di Milano, Dipartimento di Chimica, Via Golgi 19, 20133 Milan, Italy
Title of the thesis and supervisor	Study of the structural disorder induced by Al-doping in $REBa_2Cu_{3-x}Al_xO_{6+\delta}$ (RE=Y, Sm) superconductors by means of X-ray and neutron powder diffraction - Dr. M. Scavini
Final grade	110/110 cum laude

Experience Abroad

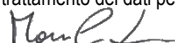
Dates	From October 2006 to July 2007
Position	Erasmus student
Education or training organization's name and locality	RWTH (Rheinisch Westfälische Technische Hochschule) university, Templergraben 55, 52056 Aachen, Germany
Date	From November 2010 to May 2011
Position	Visiting PhD student
Covered subjects and skills acquired	Testing the feasibility of "rapid acquisition PDF" measurements at the ID11 beamline of the ESRF (see pub. 7)
Education or training organization's name and locality	ESRF, European Synchrotron Radiation Facility, 6 Rue Jule Horowitz BP220 38043, Grenoble Cedex 9, France

Personal skills

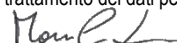
Mothertongue	Italian
Other languages	Fluent in English and French, basic level of German

Technical skills

- Theory and practice of the main methods of chemical-physical characterization of solid materials: XRD, UV-vis spectroscopy, TEM, SEM, DSC, TGA



	<ul style="list-style-type: none"> - Consolidated experience in powder diffraction: <ul style="list-style-type: none"> - complete workflow management of X-ray & Neutron Powder Diffraction experiments: planning, collection and analysis of data from lab-diffractometers, synchrotron and reactor sources - qualitative and quantitative analysis of crystalline phases via Rietveld method, determination of amorphous content - microstructure analysis: size, strain and other extended defects - PDF investigations of crystalline, disordered and amorphous materials
Scientific software	<ul style="list-style-type: none"> - Rietveld refinements: GSAS, GSAS-II, TOPAS (basics) - single crystal: CrysAlis (basics) - PDF data reduction: pdfgetX2, pdfgetX3 - PDF modeling: PDFGUI - 2D detector data reduction: Fit2D, pyFAI, dioplas - microstructure analysis: Pm2K - structure visualization: Diamond, mercury - general data analysis: Excel, Sigma Plot, Origin
Computing skills	<ul style="list-style-type: none"> - Windows and Linux operating systems - Fortran and Python programming
Awards	<ul style="list-style-type: none"> - Best PhD-thesis price in crystallography (2013) awarded by the Italian Association of Crystallography (AIC) - ‘Abilitazione scientifico nazionale per professore di seconda fascia, Settore concorsuale A03/02: Modelli e metodologie per le scienze chimiche”. 31/07/2018.
Fundings	Local PI of project PRIN 2022 “ Operando studies of High-Entropy oxide-based active materials for Na-Ion battery cathodes .”
Main collaborations	<ul style="list-style-type: none"> - Prof. Marco Scavini, Università degli Studi di Milano, Milano, Italy - Prof. Riccardo Casati, Politecnico di Milano, Milano, Italy - Dr. Catherine Dejoie, ESRF, Grenoble, France - Prof. J. P. Attfield, Center for Science at Extreme Conditions, Edinburgh, Scotland - Dr. Ivan Grigioni, Università degli Studi di Milano, Milano, Italy - Dr. Ausonio Tuissi, CNR-ICMATE, Lecco, Italy
Reviewer activity	Reviewer for ACS, Elsevier, RSC and MDPI journals. See full list of reviews on Publons: https://publons.com/researcher/1561051/mauro-coduri/metrics
Publications and bibliometric values	On June 2024: 85 publications indexed by Scopus with 1631 citations and h-index 23 88 publications indexed by WOS with 1234 citations and h-index 22 See dedicated session for publication list.
Invited Lecturer in international schools	<p>1 - <i>Hands-on course on the Pair Distribution Function method</i>, Barcelona, Spain, 12-14 November 2014:</p> <ul style="list-style-type: none"> - Talk: <i>Pair Distribution Function in synchrotron and neutron sources: Examples of applications</i> - Tutorial: <i>PDFgetX3 and PDFgui software</i> <p>https://www.iucr.org/calendar/events/countries/spain/hands-on-course-on-the-pair-distribution-function https://indico.cells.es/indico/event/10/</p> <p>2 - <i>PSI Powder Diffraction School, Modern Synchrotron Methods</i>, PSI, Villigen, Switzerland, 21st-26th August 2016:</p> <ul style="list-style-type: none"> - Talk: <i>Introduction to Total Scattering: real space</i> - Tutorial: <i>PDFgetX3 and PDFgui software</i> <p>https://indico.psi.ch/internalPage.py?pagelId=1&confId=3577</p> <p>3- <i>PSI Powder Diffraction School 2018</i>, PSI, Villigen, Switzerland, 24th-28th September 2018:</p> <ul style="list-style-type: none"> - Talk: <i>Introduction to Total Scattering: real space</i>



**Student in
international
schools**

- Tutorial: PDFgetX3 and PDFgui software

<https://ccmx.epfl.ch/powder-diffraction-school/invited-lecturers/>

1 - 40th IFF Spring School: SPINTRONIC - From GMR to quantum information

Jülich Research Centre, Jülich, Germany, 8th-20th March 2009,

2 - Diffraction at the nanoscale: Nanocrystals defective and amorphous materials

Paul Scherrer Institut, Villigen, Switzerland, 24th-30th May 2010

3 - Diffuse scattering and structure simulation

Erlangen, Germany, 10th-13th September 2012

4 - AIC International School joined with 10th Paolo Giordano Orsini School. Structure, microstructure, Nanostructure: exploiting the potential of powder diffraction techniques

Trento, Italy, 15th-20th September 2012

5 - Hands-on course on the Pair Distribution Function method, ALBA Synchrotron, Barcelona, Spain, 12th-14th November 2014.

6 - AIC International Crystallographic School 2016 : Polymorphism, stability and phase transitions in crystals: theory, experiments, applications, Rimini, Italy, 7th-11th September 2016

7 - Powder diffraction and Rietveld refinements school 2018, Durham, 8-12 April 2018