

Curriculum Vitae

Surname	Mazzolini
Name	Piero
Address	Università di Parma, Dipartimento di Scienze Matematiche, Fisiche e Informatiche, Parco area delle Scienze 7/A - Parma (Italy) - 43124
Telephone	+39 0521 90 5268
E-mail	piero.mazzolini@unipr.it
Nationality	Italian
Date of birth	13/08/1985



Education and training

Date (from – to)	01/11/2012 – 15/12/2015
Organization providing education and training	Politecnico di Milano, Department of Energy – Center for NanoEngineered Materials and Surfaces, via Ponzio 34/3, I-20133 Milano, Italy
Title of qualification	PhD in Energy and Nuclear Science and Technology (XXVIII cycle)
Mark obtained	Cum laude (highest mark)
Thesis title	Functional Properties Control of Doped TiO ₂ for Transparent Electrodes and Photoanodes
Date (from – to)	November 2009 – 12/07/2012
Organization providing education and training	Università degli Studi di Trieste, Process and Materials Engineering Department Piazzale Europa 1, 34127 Trieste - Italy
Title of qualification	Master degree in Material Engineering
Mark obtained	110/110 cum laude (highest mark)
Thesis title	La _{1.9} Sr _{0.1} CuO ₄ / CeO ₂ bilayers: optimization of the deposition process and interface effects (Master thesis work performed at the Max-Planck-Institut für Festkörperforschung in Stuttgart)

Work experience, stages, studies abroad

Date (from – to)	01/04/2020 – Ongoing
Name and address of firm/university	Università di Parma, Department of Mathematical, Physical and Computer Sciences, Parco area delle Scienze 7/A - 43124 Parma - https://smfi.unipr.it/node/3078
Type of employment	Researcher (RTD-B)
Main activities and responsibilities	Heteroepitaxial growth of Ga₂O₃ and GeO₂ thin films for electronic applications via metal organic vapour phase epitaxy (MOVPE), fabrication of photodetectors, and their physical characterization. Coordination of research project in collaboration with Paul Drude Institute of Berlin, Technical University of Berlin, and Aachen University on point defects control in Ga₂O₃ layers grown by molecular beam epitaxy (MBE). Supervision (Università di Parma) and co-supervision (Paul Drude Institute of Berlin) of PhD students .
Date (from – to)	01/10/2017 – 31/03/2020
Name and address of firm/university	Paul-Drude-Institut für Festkörperelektronik, Hausvogteiplatz 5-7, 10117 Berlin, Germany - http://www.pdi-berlin.de/home/
Type of employment	Postdoctoral fellow
Main activities and responsibilities	Heteroepitaxial and homoepitaxial Ga₂O₃ , In₂O₃ , SnO thin films for electronic applications via MBE and their physical characterization (RHEED, XRD, AFM, Seebeck, van der Pauw - Hall).
Date (from – to)	16/03/2016 – 30/09/2017
Name and address of firm/university	Italian Institute of Technology - Center for Nano Science and Technology of IIT@PoliMI, Via Pascoli 70/3 I-20133 Milano, Italy - http://cnst.iit.it/
Type of employment	Postdoctoral fellow
Main activities and	Realization of prototype devices in collaboration with industry (Technoprobe S.p.A.). Pulsed laser

responsibilities	deposition (PLD) and magnetron sputtering of thin films of oxides (TiO₂ , Al₂O₃) and metals (Cu, Cr/Au); interaction with femtosecond laser lab micromachining facility.
Date (from – to)	01/11/2012 – 15/12/2015
Name and address of firm/university	Department of Energy – Center for NanoEngineered Materials and Surfaces, Politecnico di Milano, via Ponzio 34/3, I-20133 Milano, Italy - http://www.nanolab.polimi.it/
Type of employment	PhD student
Main activities and responsibilities	PLD of semiconducting oxides (Al-doped ZnO , Ta-doped TiO₂). Engineering of their electrical and optical properties (point defects investigation) and control of their morphology at the nano- and micro-scale. Structural (Raman , SEM , EDX , XRD), electrical (van der Pauw - Hall) and optical (transmittance/reflectance/absorption measurements , optical band gap determination, light scattering-haze factor) characterization.

Date (from – to)	01/07/2014 – 30/08/2014 and 07/01/2015 – 28/02/2015
Name and address of firm/university	Max-Planck-Institut für Festkörperforschung Heisenbergstraße 1, D-70569 Stuttgart, Germany - http://www.fkf.mpg.de/maier/
Type of employment	Visiting PhD student, J. Maier's group of physical chemistry of solids
Main activities and responsibilities	Realization of an IR-lamps annealing furnace capable of <i>in-situ</i> electrical measurements and oxygen concentration monitoring (lambda sensor). Study on the crystallization and defect chemistry of TiO₂ -based thin films during rapid annealing treatments in different atmospheres.

Attended conferences and grants

Selected recent invited oral contributions to international conferences:

- SPIE 2024 – Photonics West (San Francisco, California, USA, 27/01-1/04/2024)
- TCO 2024 – Transparent conductive oxides (Leipzig University, Leipzig, Germany, 23-27/09/2024)
- TCM 2025 – Transparent Conductive Materials (Rethymno, Crete, Greece, 19-23/10/2025)
- SPIE 2026 – Photonics West (San Francisco, California, USA, 17-22/01/2026)

Technical Program Committee member for IWGO 2024 <https://grafox2022.pdi-berlin.de/iwgo-2024/workshop-committees/>

Grants as Principal Investigator:

- **Point defects control in Ga₂O₃ thin films grown via molecular beam epitaxy** (PI and Coordinator). "Deutsche Forschungsgemeinschaft – DFG" (accepted 14/10/2020 – 03/2025). Total granted budget: 614 850 €. Budget of 324 550 € for my own "temporary position for principal investigator" and my research unit at Paul Drude Institute PDI - Berlin (work employer at submission). Other PIs: Markus Wagner (Technical University - Berlin - 249 750 €), Martin Manfred (Aachen University RWTH - 40 550 €). Due to my current appointment at University of Parma, the DFG allowed to use part of my allocated budget to hire a PhD student (Andrea Ardenghi, from 15/03/2021, co-supervised by myself and Oliver Bierwagen) to carry on the experimental activity at PDI (MBE growth - layer characterization).
<https://gepris.dfg.de/gepris/projekt/446185170?language=en>
- **Understanding the crystallographic domains - electrical transport relationship in epsilon-Ga₂O₃ thin films: a step towards power electronic devices** (PI). "Bando di Ateneo per la Ricerca dell'Università di Parma 2020". Granted budget: 15 000 € (1/10/2021 - 31/10/2022).
- **Germanium in the epitaxy of wide bandgap oxide thin films: a donor dopant for k-Ga₂O₃ and a new promising ambipolar semiconductor (r-GeO₂)** (PI). "Bando di Ateneo per la Ricerca dell'Università di Parma 2023". Granted budget: 12 000 € (1/03/2024 - 31/06/2025).
- **Exploring the heteroepitaxy of rutile germanium oxide for a new generation of power electronic devices** (PI). "Bando di Ateneo per la Ricerca dell'Università di Parma 2025". Granted budget: 16 951 € (15/10/2025 - 15/10/2027).

Awards:

30/05/2022 → Scientific habilitation as Associate Professor in the field 02/B1 "Experimental Physics of Matter".

12/06/2026 → Scientific habilitation as Full Professor in the field 02/B1 "Experimental Physics of Matter".

Researcher ID profiles

ORCID: <https://orcid.org/0000-0003-2092-5265> **Scopus:** <https://www.scopus.com/authid/detail.uri?authorId=56199474500>

Google Scholar: <https://scholar.google.com/citations?user=CYZso0MAAAAJ&hl=it&oi=sra>

ResearchGate: https://www.researchgate.net/profile/Piero-Mazzolini?ev=prf_overview