



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE 5693

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Chimica**

Scientist- in - charge: **Prof. Serena Arnaboldi**

[**Massimo Dell'Edera**]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Dell'Edera
Name	Massimo

PRESENT OCCUPATION

Appointment	Structure
Postdoc researcher	Institute for Chemical and Physical Processes of the National Research Council, Bari (Italy)

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Bachelor's Degree	Chemistry (L-27)	University of Bari, Italy	2014
Master's Degree	Chemistry (LM-54)	University of Bari, Italy	2017
Visiting researcher at the Solar Energy Research Center (CIESOL) in the University of Almeria under the supervision of Prof. Ana Agüera López	Studying the degradation of emerging pollutants using photooxidation processes by heterogeneous catalysis.	University of Almeria, Spain	2020
Researcher at the company Biotec Srl (Molfetta) as part of the PhD project	Development of photocatalytic reactors for wastewater treatment based on heterogeneous photocatalysis technology.	Biotec srl, company	2020



PhD	Chemistry	University of Bari	2021
Doctor Europaeus Title	Chemistry	University of Bari	2021
Postdoctoral researcher (IPCF-AR-002-2021-BA, PROT.AMMCEN n.0024376/2021)	Design, synthesis, chemical-physical and morphological characterisation of oxide nanoparticles for energy conversion processes and energy applications.	Institute for Chemical and Physical Processes of the National Research Council, Bari (Italy)	July 2021 - September 2022
Postdoctoral researcher (IPCF-AR-003-2022-BA, PROT.AMMCEN n.0045288/2022)	Synthesis of oxide nanoparticles for energy conversion processes and environmental applications.	Institute for Chemical and Physical Processes of the National Research Council, Bari (Italy)	September 2022 - Present

FOREIGN LANGUAGES

Languages	level of knowledge
English	B2

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2019	Scholarship funded by the Italian Chemical Society (SCI), to attend the "Chemistry meets Industry and Society" Salerno Italy, 28-30 August 2019
2019	Scholarship funded by the NATO, to attend the "Detection, Diagnosis, and Health Concerns of Toxic Chemical and Biological Agents" Cetraro Italy, 29 September-05 October 2019
2022	Poster award by National Research Council for "1° Simposio Futuro INAREA" Bari, Italy 18 May 2022
2022	Winner of "ChiMiCapisce 2022" organized by Italian Chemical Society, Rome, Italy 24-May 2022
2022	Winner of "Sara Diomede" Ph.D thesis award assigned by University of Bari (1000 euro)
2022	Scholarship funded by the Italian Chemical Society (SCI), to attend the "Chimica sotto l'albero" Bari Italy, 19-20 December 2022

TRAINING OR RESEARCH ACTIVITY

During his master's degree, Dr. Massimo Dell'Edera gained experience in various spectroscopic techniques, including time-resolved UV-VIS spectroscopy, and practiced organic synthesis and protein biochemistry. He further developed his skills during his PhD work, where he extensively used colloidal synthesis techniques to obtain nano-materials with predetermined chemical and physical properties. Synthesized TiO₂-based nanoparticles were deposited onto different substrates for photocatalytic wastewater treatment and, thanks to the collaboration with Biotec s.r.l., a photocatalytic pilot plant was developed to treat polluted groundwater. During the visiting period at the University of Almeria he learned and applied



chromatographic and mass spectrometric analysis techniques, including UHPLC-DAD and HPLC MS/MS, for the analysis of organic molecules in aqueous matrices. He also has expertise in the deposition of nano-materials on different surfaces and their characterization using techniques such as TEM, SEM, AFM, FT-IR, UV-Vis-NIR, PL, and DRS.

During his post-doctoral experience, he expanded his knowledge of colloidal and sol-gel synthesis of metal oxide nanostructures for energy conversion and environmental remediation applications.

Therefore, Dr. Massimo Dell'Edera is a highly skilled and knowledgeable researcher in the field of nano-structured materials, with expertise in synthesis, deposition, and characterization, as well as in the analysis of organic molecules using chromatographic and mass spectrometric techniques.

PROJECT ACTIVITY

Year	Project
2018-2021	PON Energie per l'Ambiente - TARANTO Tecnologie e processi per l'Abbattimento di inquinanti e la bonifica di siti contaminati con Recupero di mAterie prime e produzioNe di energia TOtally green (TARANTO) Role: Participant
2019-2022	TOPSIS -Ti-based Nanostructured Oxides and Nanocomposites for Photo-assisted Electrolysis. Role: Participant
2020-2022	BEST4U-Tecnologia per Celle Solati Bifacciali ad alta efficienza a 4 terminali per "utility scale" Role: Participant
2021-2022	SANITATION (Proposal Code FISR2020IP_01034) Role: Participant
2021-present	ECOTEC (Proposal Code ARS01_00951) designing high-tech materials and processes for the technical clothing sector Role: Participant
2021-present	MISSION INNOVATION Italian Accelerated Platform for Materials for Energy. Role: Participant

CONGRESSES AND SEMINARS

Date	Title	Place
5-7 September 2018	ADVANCED INORGANIC MATERIALS: GREEN AND UNCONVENTIONAL SYNTHESIS APPROACHES AND FUNCTIONAL ASSESSMENT Poster presentation entitled: "Design and realization of photocatalytic coatings based on TiO ₂ nanoparticles " Authors: M.Dell'Edera , F.Petronella, A.Truppi, A.Agostiano, M.L. Curri and R.	Padova, Italy



	Comparelli	
26-30 June-2019	6TH EAAOP CONGRESS Poster presentation entitled: “Development of immobilization methods of TiO ₂ nanoparticles for wastewater treatment application” Authors: M. Dell’Edera , F. Petronella, T. Sibillano, C. Giannini, A. Agostiano, M. L. Curri and R. Comparelli.	Portrose, Slovenia
28-30 August 2019	CHEMISTRY MEETS INDUSTRY AND SOCIETY Poster presentation entitled: “Development of novel deposition strategies of nano-TiO ₂ onto unconventional substrates for wastewater treatment” Authors: M. Dell’Edera , F. Petronella, T. Sibillano, C. Giannini, A. Agostiano, M. L. Curri and R. Comparelli.	Salerno, Italy
11-14 September 2019	7th INTERNATIONAL CONFERENCE ON SEMICONDUCTOR PHOTOCHEMISTRY (SP7). Poster presentation entitled: “EPOSITION OF TiO ₂ NANOPARTICLES ONTO UNCONVENTIONAL SUBSTRATES FOR WASTEWATER TREATMENT” Authors: M. Dell’Edera , F. Petronella, T.Sibillano, C. Giannini, A. Agostiano, M. L. Curri and R. Comparelli	Milan, Italy
28-30 October 2019	DSCTM Conferenza di Dipartimento Poster presentation entitled: “Nanocatalyst Onto Unconventional Substrates For Wastewater Treatment: A New Coating Approach Authors: M. Dell’Edera , F. Petronella, T. Sibillano, C. Giannini, A. Agostiano, M. L. Curri , R. Comparelli	Bressanone, Italy
25-27 November 2019	Merck Young Chemists’ Symposium Oral presentation entitled: “TiO ₂ nanoparticles deposition onto different substrates” Authors: M. Dell’Edera , F. Petronella, T.Sibillano, C. Giannini, L. Liotta, A. Agostiano, M. L. Curri and R.Comparelli.	Rimini, Italy
28-31 March 2021	Nine2021 start up innovation in nanotechnology Oral presentation entitled: “LOW TEMPERATURE SYNTHESIS OF PHOTOCATALYTIC MESOPOROUS TiO ₂ NANOMATERIALS” Authors: M. Dell’Edera ; F. Petronella; A. Truppi; L.F. Liotta; N. Galli; T. Sibillano; C. Giannini; R. Brescia; F. Milano; M. Striccoli; A. Agostiano; M.L. Curri and R. Comparelli	Virtual conference
14-29 September 2021	SCI 2021 Oral presentation entitled “Remediation of groundwater contaminated with PCBs and PAHs by photocatalysis employing nano-sized TiO ₂ supported onto steel mesh” Authors: S .Murgolo , C. De Ceglie, G. Bagnuolo, R. Ciannarella, M. Dell’Edera , A. Truppi, R. Comparelli, M. L. Curri and G. Mascolo	Virtual conference
14-29 September 2021	SCI 2021 Poster presentation entitled “Photocatalytic Antimicrobial Inactivation By TiO ₂ -Based Nanostructured Materials”.	Virtual conference



	Authors: <u>I. De Pasquale</u> , <u>M. Dell'Edera</u> , C. Lo Porto, E. Roberto, A. Agostiano, M. L. Curri and R. Comparelli	
14-29 September 2021	SCI 2021 Oral presentation entitled "Nano-TiO ₂ based material for environmental and antibacterial application" Authors: <u>M. Dell'Edera</u> , I. De Pasquale, C. Lo Porto, E. Roberto, A. Agostiano, M. L. Curri and R. Comparelli.	Virtual conference
20 December 2021	Chimica sotto l'albero Oral presentation entitled "Photocatalytic TiO ₂ -based nanomaterials: sustainable and scalable strategies for degradation of priority and emerging pollutants in water" Authors: <u>M. Dell'Edera</u> , S. Murgolo, G. Mascolo, C. Giannini, T. Sibillano, L.F. Liotta, A. Agüera, A. Agostiano, M. L. Curri and R. Comparelli.	Bari, Italy
20 December 2021	Chimica sotto l'albero Oral presentation entitled "TiO ₂ -Ag nanocomposite for water depollution and disinfection" Authors: <u>E. Roberto</u> , <u>M. Dell'Edera</u> , I. De Pasquale, M. L. Curri, R. Comparelli	Bari, Italy
6-10 June 2022	SPEA 2022 Oral presentation entitled "Supported TiO ₂ - based nanomaterials: from material synthesis to photocatalytic application in groundwater treatment at a pilot scale" Authors: <u>M. Dell'Edera</u> , S. Murgolo, G. Mascolo, C. Giannini, T. Sibillano, L.F. Liotta, A. Agostiano, M. L. Curri and R. Comparelli	Turin, Italy
6-10 June 2022	SPEA 2022 Poster presentation entitled "TiO ₂ -Based plasma-deposited nanocomposite coatings for photocatalytic degradation of organic pollutants in water" Authors: <u>C. Lo Porto</u> , F. Palumbo, <u>M. Dell'Edera</u> , I. De Pasquale, E. Roberto, M. L. Curri, R. Comparelli	Turin, Italy
6-10 June 2022	SPEA 2022 Poster presentation entitled "Photocatalytic Antimicrobial Inactivation Assisted Mesoporous TiO ₂ Nanoparticles" Authors: <u>I. De Pasquale</u> , <u>M. Dell'Edera</u> , C. Lo Porto, E. Roberto, A. Agostiano, M.L. Curri and R. Comparelli	Turin, Italy
23-24 June 2022	AIM 2022 Oral presentation entitled "CuO-CeO ₂ -TiO ₂ photocatalysts prepared in situ by Solution Combustion Synthesis for the efficient degradation of Methyl Blue and Nalidixic Acid under UV and Visible light" Authors: F. Deganello, L.F. Liotta, <u>M. Dell'Edera</u> , M. L. Curri and R. Comparelli	Bari, Italy
23-24 June 2022	AIM 2022 Poster presentation entitled "Plasmo-chemical method for deposition of photocatalytic nanocomposite coatings for environmental applications"	Bari, Italy



	Authors: <u>C. Lo Porto</u> , F. Palumbo, M. Dell'Edera , I. De Pasquale, E. Roberto, M. L. Curri and R. Comparelli	
23-24 June 2022	AIM 2022 Poster presentation entitled “Study of the Antimicrobial Inactivation Assisted by Photocatalytic Mesoporous TiO ₂ Nanoparticles” Authors: <u>I. De Pasquale</u> , M. Dell'Edera , C. Lo Porto, E. Roberto, A. Agostiano, M. L. Curri and R. Comparelli	Bari, Italy
23-24 June 2022	AIM 2022 Poster presentation entitled “TiO ₂ nanoparticles in the field of Cultural Heritage: Case study of the sarcophagus of Sparano from Bari” Author: <u>M. Mastroiilli</u> , M. Dell'Edera , I. De Pasquale, P. Acquafredda, A. Monno, L. Spalluto, A. Mangone, R. Comparelli, Maria Lucia Curri	Bari, Italy
23-24 June 2022	AIM 2022 Poster presentation entitled “Hybrid nanocomposites based on Reduced Graphene Oxide decorated with TiO ₂ Nanocrystals for photocatalysis and antimicrobial applications” Author: <u>A. Disha</u> , M. Dell'Edera , I. De Pasquale, E. Mesto, E. Schingaro, G. V. Bianco, A. Milella, E. Fanizza, R. Comparelli, M. Striccoli, A. Agostiano, M. L. Curri, C. Ingrosso	Bari, Italy
4-6 July 2022	XLVIII Congress of the Italian Chemical Society Poster presentation entitled “TiO ₂ -based nanomaterials assisted photocatalytic treatment for virus inactivation” Authors: I. De Pasquale, M. Dell'Edera , E. Roberto, C. Lo Porto, <u>A. Agostiano</u> , M. L. Curri and R. Comparelli.	Genova, Italy
28-30 September 2022	Puglia Heritage Oral presentation entitled “Il sarcofago di Sparano da Bari: Studio, restauro e innovazione” Authors: <u>M. Mastroiilli</u> , R. Comparelli, M. Dell'Edera , I. De Pasquale, P. Acquafredda, R. Mangone, A. Monno, L. Spalluto, E. Longo, G. Tempesta, M. L. Curri	Bari, Italy
25-26 October 2022	Giornate di Dipartimento Poster presentation entitled “Photoactive TiO ₂ nanomaterials: a powerful tool for air/water remediation, antimicrobial inactivation and cultural heritage protection” Authors: M. Dell'Edera , I. De Pasquale, C. Lo Porto, E. Roberto, M. Mastroiilli, M. Striccoli, A. Agostiano, M. L. Curri and R. Comparelli.	Catania, Italy
21-23 November 2022	Merck Young Chemists' Symposium 2022 Oral presentation entitled “TiO ₂ based nanomaterials for environmental and cultural heritage protection applications” Authors: M. Dell'Edera , I. De Pasquale, C. Lo Porto, E. Roberto, M. Mastroiilli, M. Striccoli, A. Agostiano, M. L. Curri and R. Comparelli	Rimini, Italy



19-20 December 2022	Chimica sotto l'albero Poster presentation entitled "Real applications of nanostructured TiO ₂ based coatings in environmental field" Authors: <u>E. Roberto</u> , <u>M. Dell'Edera</u> , I. De Pasquale, C. Lo Porto, M. Mastrorilli, A. Agostiano, M. L. Curri and R. Comparelli. .	Bari, Italy
19-20 December 2022	Chimica sotto l'albero Oral presentation entitled "TiO ₂ -based nanomaterial for viruses inactivation" Authors: <u>M. Dell'Edera</u> , I. De Pasquale, E. Roberto, C. Lo Porto, A. Agostiano, M. L. Curri and R. Comparelli	Bari, Italy
22-25 January 2023	"30 years of INSTM: past, present and future of the Consortium" Oral presentation entitled "COLLOIDAL INORGANIC NANOPARTICLES: SYNTHETIC STRATEGIES, CHARACTERIZATION AND PERSPECTIVES FOR APPLICATIONS IN THE ENERGY FIELDS" Authors: <u>E. Fanizza</u> , M. Giancaspro, A. Madonia, <u>M. Dell'Edera</u> , P. Lasala, C. Dibenedetto, I. De Pasquale, R. Comparelli, N. Depalo, M. Striccoli, M. L. Curri	Bressanone, Italy

PUBLICATIONS

Books
F. Petronella, A. Truppi, <u>M. Dell'Edera</u> , A. Agostiano, M. L. Curri and R. Comparelli. Scalable Synthesis of Mesoporous TiO ₂ for Environmental Photocatalytic Applications. In Application of Photoactive Nanomaterials in Degradation of Pollutants MDPI, 2019. ISBN 978-3-03921-381-8 (Pbk); ISBN 978-3-03921-382-5 (PDF)

Articles in reviews
C. Lo Porto, <u>M. Dell'Edera</u> , I. De Pasquale, A. Milella, F. Fracassi, M. L. Curri, R. Comparelli, F. Palumbo. Photocatalytic Investigation of Aerosol-Assisted Atmospheric Pressure Plasma Deposited Hybrid TiO ₂ Containing Nanocomposite Coatings. <i>Nanomaterials</i> 2022,12(21), 3758.
B. Notarnicola, G. Tassielli, P. A. Renzulli, R. Di Capua, F. Astuto, G. Mascolo, S. Murgolo, C. De Ceglie, M. L. Curri, R. Comparelli, <u>M. Dell'Edera</u> , Life Cycle Assessment of UV-C based treatment systems for the removal of compounds of emerging concern from urban wastewater, <i>Science of The Total Environment</i> , Volume 857, Part 2,2023,159309,ISSN 0048-9697,
I. De Pasquale, C. Lo Porto, <u>M. Dell'Edera</u> , M.L. Curri, R. Comparelli, TiO ₂ -based nanomaterials assisted photocatalytic treatment for virus inactivation: perspectives and applications, <i>Current Opinion in Chemical Engineering</i> , Volume 34, 2021, 100716, https://doi.org/10.1016/j.coche.2021.100716 . (Invited review)
<u>M. Dell'Edera</u> ; C. Lo Porto; I. De Pasquale, F. Petronella; M.L Curri; A. Agostiano; R. Comparelli, Photocatalytic TiO ₂ -based coatings for environmental applications, <i>Catalysis Today</i> 2021 <i>Catalysis Today</i> ,2021, ISSN 0920-5861, (Invited review)
I. De Pasquale; C. Lo Porto; <u>M. Dell'Edera</u> ; F. Petronella; A. Agostiano; M.L. Curri; R. Comparelli, Photocatalytic TiO ₂ - Based Nanostructured Materials for Microbial Inactivation. <i>Catalyst</i> 2020,10,1382. (invited review, cover page, editor's choice selected)
<u>M. Dell'Edera</u> ; F. Petronella; A. Truppi; L.F. Liotta; N. Galli; T. Sibillano; C. Giannini; R. Brescia; F. Milano; M. Striccoli; A. Agostiano; M.L. Curri; R. Comparelli. Low Temperature Synthesis of Photocatalytic Mesoporous TiO ₂ Nanomaterials. <i>Catalysts</i> 2020, 10(8),893. (editor's choice selected)



F. Petronella, A. Truppi, **M. Dell'Edera**, A. Agostiano, M. L. Curri and R. Comparelli. Scalable Synthesis of Mesoporous TiO₂ for Environmental Photocatalytic Applications, *Materials* 2019, 12(11), 1853. (invited review)

Congress proceedings

M. Dell'Edera; F. Petronella; T. Sibillano; C. Giannini; A. Agostiano; M.L. Curri; R. Comparelli. Deposition Strategies of Nano-TiO₂ Photocatalyst for Wastewater Applications. In Sindona G., Banoub J.H., Di Gioia M.L. (eds) Toxic Chemical and Biological Agents. NATO Science for Peace and Security Series A: Chemistry and Biology. Springer, Dordrecht. (2020) https://doi.org/10.1007/978-94-024-2041-8_16.

OTHER INFORMATION

Co-tutor for Bachelor's Degree in Chemistry at the University of Bari "Characterization and study of the photocatalytic activity of SnO₂ nanoparticles" student: A.Nistri

PhD representative of the Doctorate Course in Chemistry and Molecular science for the XXXIII cycle

Member of the organizing committee of the workshop "Advanced Inorganic Materials 2022" Bari, Italy, 23-24 June 2022

Member of the organizing committee for 'Researchers' Night 2021' of the Department of Chemistry

Member of the organizing committee for 'Researchers' Night 2019' of the Department of Chemistry

Member of the "Italian Chemical Society (SCI)"

License to chemical practice since 2017

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

Please DO NOT SIGN this form.

Place and date: Bari, 02/03/2023