

Raffaello Mazzaro – Academic CV



PERSONAL INFORMATION

Name: Raffaello Mazzaro
Date of birth: 20/05/1988
Place of Birth: Bentivoglio (BO), Italy
Researcher ID: N-2550-2014
ORCID: 0000-0003-4598-9556
H-index: 15 (Source: Google Scholar)
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EDUCATION

UNIVERSITY OF BOLOGNA

PhD in Chemistry

Final grade: Excellent

Bologna, Italy

January 2013 – May 2016

UNIVERSITY OF BOLOGNA

MsC in Photochemistry and Molecular Materials

Final grade: 110/110 cum laude

Bologna, Italy

November 2010 – December
2012

UNIVERSITY OF BOLOGNA

Bachelor in Materials Chemistry

Final grade: 110/110 cum laude

Bologna, Italy

October 2007 – July 2010

RESEARCH EXPERIENCE

CNR-IMM

“Graphene Flagship – Core 3” postdoctoral fellow

Bologna, Italy

May 2019 – current position

Supervisor: Prof. Vittorio Morandi

- CVD deposition of graphene films and graphene-based 3D nanostructures.
- Development and application of experimental setup for Heat Pipes performance analysis.
- Development of in-situ TEM electrochemical characterization techniques for electrocatalysis and corrosion.

LULEÅ UNIVERSITY OF TECHNOLOGY

Kempe&Knut postdoctoral fellow

Luleå, Sweden

September 2017 – May 2019

Supervisor: Prof. Alberto Vomiero

- Growth and characterization of core-shell all-oxide photoelectrodes for organic-photocatalysis and H₂ production.
- Luminescent Solar Concentrators based on Silicon Nanocrystals functionalized with organic fluorophores.

UNIVERSITY OF BOLOGNA

Postdoctoral researcher

Bologna, Italy

June 2016 – August
2017

Supervisor: Prof. Paola Ceroni

- Estimation of the position of Conduction and Valence band of colloidal Silicon Nanocrystals (SiNCs) through photoinduced electron transfer quenching with organic electron acceptors and donors.
 - Quenching constant determination through diffusion-limited PL quenching experiments.
 - Fitting of the calculated quenching constants adopting Marcus theory for SiNCs energetics determination.
- Water soluble SiNCs by two-steps thiol-ene click chemistry approach.
 - Preparation of air-compatible allyl-terminated SiNCs by Grignard addition to chlorosilanes functionalized SiNCs.
 - Covalent coupling of PEGylated thiols to allyl-terminated SiNCs.
 - Investigation of temperature-dependent behaviour of water soluble SiNCs PL lifetime.

INRS-EMT

Visiting Student

Varèennes (QC), Canada

May 2015 – August
2015

Supervisor: Prof. Federico Rosei

- KPFM investigation of photoinduced charge migration in Silicon nanocrystals deposited onto CVD graphene.

UNIVERSITY OF BOLOGNA / CNR-IMM BOLOGNA

PhD student and MsC internship

Bologna, Italy

January 2013 – May
2016

Dissertation advisor: Prof. Paola Ceroni and Dr. Vittorio Morandi

Dissertation topic: “Graphene and semiconductor or metallic nanoparticles for energy conversion”

- Synthesis and characterization of pyrene functionalized colloidal silicon nanocrystals:
 - Set-up of high temperature (>1000°C) furnace for colloidal nanocrystals preparation
 - Photophysical characterization of functionalized Silicon Nanocrystals (PL QY, Energy Transfer efficiency)
 - Morphological, compositional and structural characterization by HR-TEM and STEM.
- Investigation of photoinduced energy and electron transfer processes between self-assembled pyrene-functionalized silicon nanocrystals and carbon allotropes.
 - Time-resolved quenching experiments and flash photolysis investigation of transient excited states.
 - Electron microscopy characterization of the adducts.
- Evaluation of electrocatalytic production of graphene/platinum nanoparticles nano-hybrids.

- Preparation of exfoliated graphene and solvent-exchange to water environment.
- Decoration of exfoliated graphene with Platinum nanoparticles and morphological characterization.
- Evaluation of the electrocatalytic activity towards hydrogen production in neutral environment.
- Synthesis and characterization of platinum nanoparticles in photoactive dendrimers for water photoreduction.
 - Low temperature synthesis of Platinum nanoparticles and STEM-EDS determination of the nanoparticles confinement within photoactive dendrimers.

UNIVERSITY OF BOLOGNA

Bachelor internship

Bologna, Italy
February 2010 – July
2010

Dissertation advisor: Prof. Marco Montalti

Dissertation topic: “Self-assembly of antennae systems based on silica nanoparticles”

- Investigation of energy transfer process with core-shell Silica nanoparticles.

FELLOWSHIPS AND AWARDS

- XVIII cycle **PhD fellowship**, Chemistry Department “G.Ciamician”, University of Bologna: verbale collegio dei docenti Dottorato in chimica, Università di Bologna, 23/01/2013, protocol number not available.
- SISM (Italian society for microscopic science) **2015 award for young researchers** within the MCM conference in Eger, Hungary (750 Eur), Verbale dell’Assemblea Ordinaria dei Soci S.I.S.M 27/08/2015, president Prof. Elisabetta Falcieri, protocol number not available.
- *G.P.Spada Award XVIII cycle*, **Best PhD Thesis in Chemistry in the University of Bologna** - scientific area: inorganic chemistry, 24/02/2016 awarded by Chief of department Prof. Luca Prodi and PhD in Chemistry coordinator Prof. Aldo Roda, protocol number not available.
- “G. Ciamician” Chemistry department **postdoctoral fellowship**, protocol 2265 del 2/12/2015, supervisor “Prof. Paola Ceroni”.
- *GIF - Italian Photochemistry Group*, **Best Italian PhD Thesis in Photochemistry 2016**. No protocol number available, verbale GIF 19/06/2016, president Prof. Alberto Credi, protocol not available.
- SISM (Italian society for microscopic science) **Best PhD Thesis in Microscopy sciences 2017**- scientific area: materials science (550 Eur), Consiglio Direttivo SISM, Verbale dell’Assemblea Ordinaria dei Soci S.I.S.M Bologna il 25/05/2017, president Dott.ssa Elisabetta Falcieri, protocol not available.
- Kempe & Knut and Alice Wallemberg foundations **postdoctoral fellowship** (460000 SEK, 24 months), no protocol number available, Supervisor: Prof. Alberto Vomiero, protocol number not available.

SCIENTIFIC HABILITATION

- Italian Scientific Habilitation as Associate Professor “ASN seconda fascia”, subject experimental physics “02/B1, Fisica Sperimentale della Materia”. From 06/07/2020 to 06/07/2029.

EDITORIAL ACTIVITY

- Guest Editor of a Special Issue: “Nanostructured Crystalline Semiconductors: Structure, Morphology and Functional Properties”, edited by Crystals (MDPI, IF: 2.061, ISSN 2073-4352).
- Member of the Topic Editorial Board of Crystals (MDPI, IF: 2.061, ISSN 2073-4352).
- Peer-review activity for specialized journals in Chemistry, Physics and Nanotechnology (ACS Omega, Applied Nano Materials, Chemical Engineering Journal, Crystals, Dalton Transaction, J. Materials Chemistry B, Materials for Renewable and Sustainable Energy, Nano Energy, Solar Energy Materials and Solar Cells)
- Scientific review and co-authoring of a topic insert for the 4th edition of the High School book “J.E. Brady and F. Senese: Chimica”, edited by Zanichelli Editore.

CONFERENCE ORGANIZATION

- Member of the local organizing committee of Graphita2016 international conference.
- Member of the local organizing committee of CNIF 7th edition (National Introduction to Photochemistry School)

MENTORING ACTIVITIES

- Co-supervision of 4 master students (Francesca Scala (UniBO), Alessandro Gradone (UniBO), Sara Boscolo Bibi (UniPD), Matteo Bisetto (UniPD)) and 2 PhD student: Getachew Solomon (Luleå Technology University) and Alessandro Gradone (UniBO).

INVITED CONTRIBUTIONS AND OUTREACH

- **Oral keynote** presentation at 1st Joint Italian-French meeting of Photochemistry and Photobiology, Bari (IT), September 2016.
- **Invited Talk** Pint of Science 2019, Bologna, Birreria Popolare, 22 May 2019.
- **Invited Seminar** at University of Padova, Department of Chemistry, 18 June 2019.
- **Invited Outreach Seminars** within the “La Scienza a Scuola 2019” conferences cycle, organized by Zanichelli editore. 4 invited seminars in different Italian High Schools on the topic Photovoltaics and renewable Energies topic.

CONFERENCE CONTRIBUTIONS

Oral communications	Enerchem 2020. Padova (IT), 02/2020 E-MRS 2018. Warsaw (PL), 09/2018 Workshop on Silicon Nanoparticles, Bertionoro (IT), 09/2018 Euchems conference 2016, Seville (ES), 09/2016. Euromat, Nanomaterials symposium, Warsaw (PL), 09/2015. International Dendrimer Symposium, Montréal (CA), 07/2015. Graphesp 2014, Lanzarote (ES), 02/2014. GraphITA 2015, Bologna, 09/2015.
Poster	Beilstein Organic Photoredox Symposium, Potsdam (DE) 04/2018

communications Multinational Congress on Microscopy, Eger (HR), 09/2015.
ChemOnTubes, Riva del Garda (IT), 04/2014.

PUBLICATIONS

- (1) Lincheneau, C.; Amelia, M.; Oszejca, M.; Boccia, A.; D'Orazi, F.; Madrigale, M.; Zanoni, R.; Mazzaro, R.; Ortolani, L.; Morandi, V.; Silvi, S.; Szaciłowski, K.; Credi, A. Synthesis and Properties of ZnTe and ZnTe/ZnS Core/Shell Semiconductor Nanocrystals. *J. Mater. Chem. C* **2014**, *2* (16), 2877–2886. <https://doi.org/10.1039/C3TC32385D>.
- (2) Bansal, a. K.; Antolini, F.; Sajjad, M. T.; Stroea, L.; Mazzaro, R.; Ramkumar, S. G.; Kass, K.-J.; Allard, S.; Scherf, U.; Samuel, I. D. W. Photophysical and Structural Characterisation of in Situ Formed Quantum Dots. *Phys. Chem. Chem. Phys.* **2014**, *16* (20), 9556. <https://doi.org/10.1039/c4cp00727a>.
- (3) Ravotto, L.; Mazzaro, R.; Natali, M.; Ortolani, L.; Morandi, V.; Ceroni, P.; Bergamini, G. Photoactive Dendrimer for Water Photoreduction: A Scaffold to Combine Sensitizers and Catalysts. *J. Phys. Chem. Lett.* **2014**, *5* (5), 798–803. <https://doi.org/10.1021/jz500160w>.
- (4) Mazzaro, R.; Locritani, M.; Molloy, J. K.; Montalti, M.; Yu, Y.; Korgel, B. a.; Bergamini, G.; Morandi, V.; Ceroni, P. Photoinduced Processes between Pyrene-Functionalized Silicon Nanocrystals and Carbon Allotropes. *Chem. Mater.* **2015**, *27* (12), 4390–4397. <https://doi.org/10.1021/acs.chemmater.5b01769>.
- (5) Mazzaro, R.; Boni, A.; Valenti, G.; Marcaccio, M.; Paolucci, F.; Ortolani, L.; Morandi, V.; Ceroni, P.; Bergamini, G. Uniform Functionalization of High-Quality Graphene with Platinum Nanoparticles for Electrocatalytic Water Reduction. *ChemistryOpen* **2015**, *4* (3), 268–273. <https://doi.org/10.1002/open.201402151>.
- (6) Haar, S.; Ciesielski, A.; Clough, J.; Yang, H.; Mazzaro, R.; Richard, F.; Conti, S.; Merstorf, N.; Cecchini, M.; Morandi, V.; Casiraghi, C.; Samori, P. A Supramolecular Strategy to Leverage the Liquid-Phase Exfoliation of Graphene in the Presence of Surfactants: Unraveling the Role of the Length of Fatty Acids. *Small* **2015**, *11* (14), 1691–1702. <https://doi.org/10.1002/sml.201402745>.
- (7) Döbbelin, M.; Ciesielski, A.; Haar, S.; Osella, S.; Bruna, M.; Minoia, A.; Grisanti, L.; Mosciatti, T.; Richard, F.; Prasetyanto, E. A.; De Cola, L.; Palermo, V.; Mazzaro, R.; Morandi, V.; Lazzaroni, R.; Ferrari, A. C.; Beljonne, D.; Samori, P. Light-Enhanced Liquid-Phase Exfoliation and Current Photoswitching in Graphene–Azobenzene Composites. *Nat. Commun.* **2016**, *7*, 11090. <https://doi.org/10.1038/ncomms11090>.
- (8) Haar, S.; Bruna, M.; Lian, J. X.; Tomarchio, F.; Olivier, Y.; Mazzaro, R.; Morandi, V.; Moran, J.; Ferrari, A. C.; Beljonne, D.; Ciesielski, A.; Samori, P. Liquid-Phase Exfoliation of Graphite into Single- and Few-Layer Graphene with α -Functionalized Alkanes. *J. Phys. Chem. Lett.* **2016**, *7* (14), 2714–2721. <https://doi.org/10.1021/acs.jpcclett.6b01260>.
- (9) Arrigo, A.; Mazzaro, R.; Romano, F.; Bergamini, G.; Ceroni, P. Photoinduced Electron-Transfer Quenching of Luminescent Silicon Nanocrystals as a Way To Estimate the Position of the Conduction and Valence Bands by Marcus Theory. *Chem. Mater.* **2016**, *28* (18), 6664–6671. <https://doi.org/10.1021/acs.chemmater.6b02880>.
- (10) Guidetti, G.; Cantelli, A.; Mazzaro, R.; Ortolani, L.; Morandi, V.; Montalti, M. Tracking Graphene by Fluorescence Imaging: A Tool for Detecting Multiple Populations of Graphene in Solution. *Nanoscale* **2016**, *8* (16), 8505–8511. <https://doi.org/10.1039/C6NR02193J>.
- (11) Di Maria, F.; Zanelli, A.; Liscio, A.; Kovtun, A.; Salatelli, E.; Mazzaro, R.; Morandi, V.; Bergamini, G.; Shaffer, A.; Rozen, S. Poly(3-Hexylthiophene) Nanoparticles Containing Thiophene-S,S-Dioxide: Tuning of Dimensions, Optical and Redox Properties, and Charge Separation under Illumination. *ACS Nano* **2017**, *11* (2), 1991–1999.

- <https://doi.org/10.1021/acsnano.6b08176>.
- (12) Mazzero, R. Nanocristalli Di Silicio: Una Piattaforma Funzionale per La Costruzione Di Nanostrutture Ibride per La Conversione Di Energia. *La Chim. e l'Industria* **2017**, 2 (March/April), 40–46. <https://doi.org/http://dx.medra.org/10.17374/CI.2017.99.2.40>.
 - (13) Yu, Y.; Fan, G.; Fermi, A.; Mazzero, R.; Morandi, V.; Ceroni, P.; Smilgies, D.-M. ; Korgel, B. A. Size-Dependent Photoluminescence Efficiency of Silicon Nanocrystal Quantum Dots. *J. Phys. Chem. C* **2017**, 121 (41), 23240–23248. <https://doi.org/10.1021/acs.jpcc.7b08054>.
 - (14) Fedorenko, S. V.; Jilkin, M. E.; Gryaznova, T. V.; Iurko, E. O.; Bochkova, O. D.; Mukhametshina, A. R.; Nizameev, I. R.; Kholin, K. V.; Mazzero, R.; Morandi, V.; Vomiero, A.; Mustafina, A. R.; Budnikova, Y. H. Silica Nanospheres Coated by Ultrasmall Ag₀ Nanoparticles for Oxidative Catalytic Application. *Colloid Interface Sci. Commun.* **2017**, 21, 1–5. <https://doi.org/10.1016/j.colcom.2017.10.001>.
 - (15) Zangoli, M.; Di Maria, F.; Zucchetti, E.; Bossio, C.; Antognazza, M. R.; Lanzani, G.; Mazzero, R.; Corticelli, F.; Baroncini, M.; Barbarella, G. Engineering Thiophene-Based Nanoparticles to Induce Phototransduction in Live Cells under Illumination. *Nanoscale* **2017**, 9 (26), 9202–9209. <https://doi.org/10.1039/C7NR01793F>.
 - (16) Lisi, N.; Dikonimos, T.; Buonocore, F.; Pittori, M.; Mazzero, R.; Rizzoli, R.; Marras, S.; Capasso, A. Contamination-Free Graphene by Chemical Vapor Deposition in Quartz Furnaces. *Sci. Rep.* **2017**, 7 (1), 9927. <https://doi.org/10.1038/s41598-017-09811-z>.
 - (17) Mazzero, R.; Romano, F.; Ceroni, P. Long-Lived Luminescence of Silicon Nanocrystals: From Principles to Applications. *Phys. Chem. Chem. Phys.* **2017**, 19 (39), 26507–26526. <https://doi.org/10.1039/C7CP05208A>.
 - (18) Di Maria, F.; Zangoli, M.; Gazzano, M.; Fabiano, E.; Gentili, D.; Zanelli, A.; Fermi, A.; Bergamini, G.; Bonifazi, D.; Perinot, A.; Caironi, M.; Mazzero, R.; Morandi, V.; Gigli, G.; Liscio, A.; Barbarella, G. Controlling the Functional Properties of Oligothiophene Crystalline Nano/Microfibers via Tailoring of the Self-Assembling Molecular Precursors. *Adv. Funct. Mater.* **2018**, 28 (32), 1801946. <https://doi.org/10.1002/adfm.201801946>.
 - (19) Cailotto, S.; Mazzero, R.; Enrichi, F.; Vomiero, A.; Selva, M.; Cattaruzza, E.; Cristofori, D.; Amadio, E.; Perosa, A. Design of Carbon Dots for Metal-Free Photoredox Catalysis. *ACS Appl. Mater. Interfaces* **2018**, 10 (47), 40560–40567. <https://doi.org/10.1021/acsami.8b14188>.
 - (20) Scrivanti, A.; Bortoluzzi, M.; Morandini, A.; Dolmella, A.; Enrichi, F.; Mazzero, R.; Vomiero, A. Luminescent Europium(III) Complexes Containing an Electron Rich 1,2,3-Triazolyl-Pyridyl Ligand. *New J. Chem.* **2018**, 42 (13), 11064–11072. <https://doi.org/10.1039/C8NJ01390J>.
 - (21) Silvestrini, S.; De Filippo, C. C.; Vicentini, N.; Menna, E.; Mazzero, R.; Morandi, V.; Ravotto, L.; Ceroni, P.; Maggini, M. Controlled Functionalization of Reduced Graphene Oxide Enabled by Microfluidic Reactors. *Chem. Mater.* **2018**, 30 (9), 2905–2914. <https://doi.org/10.1021/acs.chemmater.7b04740>.
 - (22) Silvestrini, S.; De Filippo, C. C.; Vicentini, N.; Menna, E.; Mazzero, R.; Morandi, V.; Ravotto, L.; Ceroni, P.; Maggini, M. Controlled Functionalization of Reduced Graphene Oxide Enabled by Microfluidic Reactors. *Chem. Mater.* **2018**, 30 (9), 2905–2914. <https://doi.org/10.1021/acs.chemmater.7b04740>.
 - (23) Khrizanforov, M. N.; Fedorenko, S. V.; Mustafina, A. R.; Kholin, K. V.; Nizameev, I. R.; Strelakova, S. O.; Grinenko, V. V.; Gryaznova, T. V.; Zairov, R. R.; Mazzero, R.; Morandi, V.; Vomiero, A.; Budnikova, Y. H. Silica-Supported Silver Nanoparticles as an Efficient Catalyst for Aromatic C–H Alkylation and Fluoroalkylation. *Dalt. Trans.* **2018**, 47 (29), 9608–9616. <https://doi.org/10.1039/C8DT01090K>.
 - (24) Fornasari, L.; Mazzero, R.; Boanini, E.; D'Agostino, S.; Bergamini, G.; Grepioni, F.; Braga, D.

- Self-Assembly and Exfoliation of a Molecular Solid Based on Cooperative B–N and Hydrogen Bonds. *Cryst. Growth Des.* **2018**, *18* (12), 7259–7263. <https://doi.org/10.1021/acs.cgd.8b01674>.
- (25) Mazzaro, R.; Vomiero, A. The Renaissance of Luminescent Solar Concentrators: The Role of Inorganic Nanomaterials. *Adv. Energy Mater.* **2018**, *8* (33), 1801903. <https://doi.org/10.1002/aenm.201801903>.
- (26) Liu, G.; Mazzaro, R.; Wang, Y.; Zhao, H.; Vomiero, A. High Efficiency Sandwich Structure Luminescent Solar Concentrators Based on Colloidal Quantum Dots. *Nano Energy* **2019**, *60* (February), 119–126. <https://doi.org/10.1016/j.nanoen.2019.03.038>.
- (27) Ibupoto, Z. H.; Amin, S.; Tahira, A.; Solangi, A.; Mazzaro, R.; Vomiero, A. A Sensitive Enzyme-Free Lactic Acid Sensor Based on NiO Nanoparticle for Practical Applications. *Anal. Methods* **2019**, In press. <https://doi.org/10.1039/C9AY00516A>.
- (28) Solomon, G.; Mazzaro, R.; You, S.; Natile, M. M.; Morandi, V.; Concina, I.; Vomiero, A. Ag₂S/MoS₂ Nanocomposites Anchored on Reduced Graphene Oxide: Fast Interfacial Charge Transfer for Hydrogen Evolution Reaction. *ACS Appl. Mater. Interfaces* **2019**, *11* (25), 22380–22389. <https://doi.org/10.1021/acsami.9b05086>.
- (29) Liu, G.; Mazzaro, R.; Wang, Y.; Zhao, H.; Vomiero, A. High Efficiency Sandwich Structure Luminescent Solar Concentrators Based on Colloidal Quantum Dots. *Nano Energy* **2019**, *60* (February), 119–126. <https://doi.org/10.1016/j.nanoen.2019.03.038>.
- (30) Ghamgosar, P.; Rigoni, F.; Kohan, M. G.; You, S.; Morales, E. A.; Mazzaro, R.; Morandi, V.; Almqvist, N.; Concina, I.; Vomiero, A. Self-Powered Photodetectors Based on Core–Shell ZnO–Co₃O₄ Nanowire Heterojunctions. *ACS Appl. Mater. Interfaces* **2019**, *11* (26), 23454–23462. <https://doi.org/10.1021/acsami.9b04838>.
- (31) Amin, S.; Tahira, A.; Solangi, A.; Beni, V.; Morante, J. R.; Liu, X.; Fallhman, M.; Mazzaro, R.; Ibupoto, Z. H.; Vomiero, A. A Practical Non-Enzymatic Urea Sensor Based on NiCo₂O₄ Nanoneedles. *RSC Adv.* **2019**, *9* (25), 14443–14451. <https://doi.org/10.1039/C9RA00909D>.
- (32) Mazzaro, R.; Boscolo Bibi, S.; Natali, M.; Bergamini, G.; Morandi, V.; Ceroni, P.; Vomiero, A. Hematite Nanostructures: An Old Material for a New Story. Simultaneous Photoelectrochemical Oxidation of Benzylamine and Hydrogen Production through Ti Doping. *Nano Energy* **2019**, *61* (March), 36–46. <https://doi.org/10.1016/j.nanoen.2019.04.013>.
- (33) Gilzad Kohan, M.; Mazzaro, R.; Morandi, V.; You, S.; Concina, I.; Vomiero, A. Plasma Assisted Vapor Solid Deposition of Co₃O₄ Tapered Nanorods for Energy Applications. *J. Mater. Chem. A* **2019**, *7* (46), 26302–26310. <https://doi.org/10.1039/C9TA08055D>.
- (34) Amin, S.; Tahira, A.; Solangi, A.; Beni, V.; Morante, J. R.; Liu, X.; Fallhman, M.; Mazzaro, R.; Ibupoto, Z. H.; Vomiero, A. A Practical Non-Enzymatic Urea Sensor Based on NiCo₂O₄ Nanoneedles. *RSC Adv.* **2019**, *9* (25), 14443–14451. <https://doi.org/10.1039/c9ra00909d>.
- (35) Mazzaro, R.; Gradone, A.; Angeloni, S.; Morselli, G.; Cozzi, P. G.; Romano, F.; Vomiero, A.; Ceroni, P. Hybrid Silicon Nanocrystals for Color-Neutral and Transparent Luminescent Solar Concentrators. *ACS Photonics* **2019**, *6* (9), 2303–2311. <https://doi.org/10.1021/acsphotonics.9b00802>.
- (36) Aftab, U.; Tahira, A.; Mazzaro, R.; Abro, M. I.; Baloach, M. M.; Willander, M.; Nur, O.; Yu, C.; Ibupoto, Z. H. Defect Rich CuO-Co₃O₄ Nanostructures as Advanced Electrocatalyst for Oxygen Evolution Reaction in Alkaline Media. *ACS Appl. Mater. Interfaces* **2020**, Submitted.
- (37) Aftab, U.; Tahira, A.; Mazzaro, R.; Morandi, V.; Ishaq Abro, M.; Baloch, M. M.; Yu, C.; Ibupoto, Z. H. Nickel–Cobalt Bimetallic Sulfide NiCo₂S₄ Nanostructures for a Robust Hydrogen Evolution Reaction in Acidic Media. *RSC Adv.* **2020**, *10* (37), 22196–22203. <https://doi.org/10.1039/D0RA03191G>.
- (38) Liu, G.; Mazzaro, R.; Sun, C.; Zhang, Y.; Wang, Y.; Zhao, H.; Han, G.; Vomiero, A. Role of

- Refractive Index in Highly Efficient Laminated Luminescent Solar Concentrators. *Nano Energy* **2020**, *70* (308), 104470. <https://doi.org/10.1016/j.nanoen.2020.104470>.
- (39) Romano, F.; Angeloni, S.; Morselli, G.; Mazzaro, R.; Morandi, V.; Shell, J. R.; Cao, X.; Pogue, B. W.; Ceroni, P. Water-Soluble Silicon Nanocrystals as NIR Luminescent Probes for Time-Gated Biomedical Imaging. *Nanoscale* **2020**, *12* (14), 7921–7926. <https://doi.org/10.1039/D0NR00814A>.
- (40) Amin, S.; Tahira, A.; Solangi, A. R.; Mazzaro, R.; Ibupoto, Z. H.; Fatima, A.; Vomiero, A. Functional Nickel Oxide Nanostructures for Ethanol Oxidation in Alkaline Media. *Electroanalysis* **2020**, *32* (5), 1052–1059. <https://doi.org/10.1002/elan.201900662>.
- (41) Burresti, E.; Taurisano, N.; Protopapa, M. L.; Latterini, L.; Palmisano, M.; Mirengi, L.; Schioppa, M.; Morandi, V.; Mazzaro, R.; Penza, M. Influence of the Synthesis Conditions on the Microstructural, Compositional and Morphological Properties of Graphene Oxide Sheets. *Ceram. Int.* **2020**. <https://doi.org/10.1016/j.ceramint.2020.05.222>.
- (42) Benazzi, E.; Coni, V. C.; Boni, M.; Mazzaro, R.; Morandi, V.; Natali, M. The Role of the Capping Agent and Nanocrystal Size in Photoinduced Hydrogen Evolution Using CdTe/CdS Quantum Dot Sensitizers. *Dalt. Trans.* **2020**, Just Accepted. <https://doi.org/10.1039/D0DT01195A>.
- (43) Infantes-Molina, A.; Villanova, A.; Talon, A.; Gilzad Kohan, M.; Gradone, A.; Mazzaro, R.; Morandi, V.; Vomiero, A.; Moretti, E. Au-Decorated Ce-Ti Mixed Oxides for Efficient CO Preferential Photo-Oxidation. *ACS Appl. Mater. Interfaces* **2020**, acsami.0c08258, Just Accepted. <https://doi.org/10.1021/acsami.0c08258>.

PATENTS

- (1) Mazzaro, R.; Arrigo, A.; Canino, M.; Romano, F.; Bergamini, G.; Morandi, V.; Ceroni, P. Device and realization method of luminescent solar concentrators based on silicon nanostructures. *WIPO* **2018**, WO/2018/154616 A1, US20200058814A1.
- (3) Mazzaro, R.; Arrigo, A.; Canino, M.; Romano, F.; Bergamini, G.; Morandi, V.; Ceroni, P. Metodo per La Realizzazione Di Una Lastra Di Supporto Provvista Di Nanostrutture Di Silicio E Di Un Concentratore Solare Luminescente Inorganico Provvisto Di Tale Lastra Di Supporto. *Ital. Pat. Off.* **2017**, No. 102017000085882 (UA2017A005609), under evaluation.

Tutto quanto dichiarato nel presente Curriculum Vitae corrisponde a verità ai sensi degli articoli 46 e 47 del D.P.R. 445/2000.