

PERSONAL INFORMATION

Marco Zannotti

Sex Male | Date of birth 09/12/1986 | Nationality Italian

JOB APPLIED FOR
POSITION
PREFERRED JOB
STUDIES APPLIED FOR

Research And Development

WORK EXPERIENCE

11/01/2014 – 10/07/2014

Visiting Researcher

University of Nottingham, School of Inorganic Chemistry, E. A. Gibson research group

- Optimization, production, study and characterization of p-type Solar Cells for their use in Tandem Solar Cell devices

EDUCATION AND TRAINING

19/03/2012 – 19/03/2015	Ph.D. in “Chemical And Pharmaceutical Sciences And Biotechnolony : Chemical Sciences”	
	Università Degli Studi di Camerino – School Of Science And Technology – Chemistry Division Ph.D. Thesis : “Analytical approach to technologies for the environment: from wastewater aeration to energy production”	
	<ul style="list-style-type: none"> ▪ Aeration process ▪ Adsorption and kinetic studies ▪ Preparation of nanomaterials and their electrochemical characterization ▪ Optimization of DSSCs and their characterization 	
15/12/2008 – 13/04/2011	Master Degree in Chemistry And Advanced Chemical Methodologies (Classe 62/S)	
	Università Degli Studi di Camerino – School Of Science And Technology – Environmental Chemistry Master Degree Thesis : “ Ottimizzazione dell’assorbimento di coloranti porfirinici su film nanoconduttori: uno studio cinetico e di equilibrio.” Final Mark: 110/110 with honors	
	<ul style="list-style-type: none"> ▪ Uv-vis characterization ▪ Adsorption and kinetic studies 	
6/10/2006 – 15/12/2008	Bachelor Degree in Chemistry (Classe 21)	
	Università Degli Studi di Camerino – School Of Science And Technology – Chemistry Division Bachelor Degree Thesis : “Studio delle proprietà coordinative di leganti precarbenici derivati da liquidi ionici a base di imidazoli e triazoli N-alchilati Final Mark: 110/110 with honors	
	<ul style="list-style-type: none"> ▪ Inorganic Synthesis ▪ Coordination Chemistry 	
2001-2005	Diploma di Maturità Scientifica	
	Liceo Scientifico V.Volterra Fabriano- Final Mark : 100/100	

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills ▪ Good communication skills gained through my experience in the laboratory teams at University of Nottingham and Camerino;

Organisational / managerial skills ▪ Good work planning ;
▪ Prone to teamwork and cooperation;
▪ Analytical and methodical approach ;

Job-related skills ▪ Experience in nanocomposite synthesis ;
▪ Experience in oxygenation for wastewater depuration;
▪ Experience in production, characterization and optimization of Dye Sensitised Solar Cells;
▪ Experience in Photo-catalysis by TiO_2 ;
▪ Good Knowledge of the following characterization techniques :
- UV-vis Spectrophotometry;
- Fluorescence Spectrophotometry.
- Scanning Electron Microscopy;
- ICP-MS ;
- Gas Chromatography;
- X-Ray Diffraction ;
- Solar Simulator and charge studies for Solar Cells;
- Morphological Analysis ;
- BET
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Computer skills ▪ Good knowledge on Windows® Operating System;
▪ Good knowledge of Origin Software.

Other skills ▪ Amateur football player ;
▪ Runner;

Driving licence ▪ B
▪ Equipped with Passport

ADDITIONAL INFORMATION

- Publications
- Presentations
- Projects
- Conferences
- Seminars
- Honours and awards
- Memberships
- References

Publications

- R. Giovannetti, **M. Zannotti**, L. Alibabaei, and S. Ferraro, *International Journal of Photoenergy*, 2014; Vol. 1; Pages:1 -9 **Equilibrium and kinetic aspects in the sensitization of monolayer transparent TiO₂ thin films with porphyrin dyes for DSSC applications**

Abstract

Free base, Cu(II) and Zn(II) complexes of the 2,7,12,17-tetrapropionic acid of 3,8,13,18-tetramethyl-21H,23H porphyrin (CPI) in solution and bounded to transparent monolayer TiO₂ nanoparticle films were studied to determine their adsorption on TiO₂ surface, to measure the adsorption kinetics and isotherms, and to use the results obtained to optimize the preparation of DSSC photovoltaic cells. Adsorption studies were carried out on monolayer transparent TiO₂ films of a known thickness. Langmuir and Freundlich adsorption constants of CPI-dyes on TiO₂ monolayer surface have been calculated as a function of the equilibrium concentrations in the solutions. The amount of these adsorbed dyes showed the accordance with Langmuir isotherm. Kinetic data on the adsorption of dyes showed significantly better fits to pseudo-first-order model and the evaluated rate constants linearly increased with the grow of initial dye concentrations. The stoichiometry of the adsorption of CPI-dyes into TiO₂ and the influence of presence of coadsorbent (chenodeoxycholic acid) have been established. The DSSC obtained in the similar conditions showed that the best efficiency can be obtained in the absence of coadsorbent with short and established immersion times.

- R. Giovannetti, L. Alibabaei, **M. Zannotti**, S. Ferraro, L. Petetta, *The Scientific Journal*; 2013; Vol. 1; Pages:1 -9 **HPLC-DAD-ESI/MS Identification of Light Harvesting and Light Screening Pigments in the Lake Sediments at Edmonson Point**

Abstract

The composition of sedimentary pigments in the Antarctic lake at Edmonson Point has been investigated and compared with the aim to provide a useful analytical method for pigments separation and identification, providing reference data for future assessment of possible changes in environmental conditions. Reversed phase high performance liquid chromatography (HPLC) with electrospray-mass spectrometry (ESI-MS) detection and diode array detection (DAD) has been used to identify light screening and light harvesting pigments. The results are discussed in terms of local environmental conditions.

Submitted articles

- **M. Zannotti**, R. Giovannetti, *Journal of Molecular Liquids*, **Kinetic evidence for the effect of salts on the oxygen solubility using laboratory prototype aeration system.**
- **M. Zannotti**, R. Giovannetti, C.A. D'Amato, E. Rommozzi, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, **Spectroscopic studies of porphyrins functionalized multiwall carbon nanotubes and their interaction with TiO₂ nanoparticles surface.**

Presentations

Speaker at **Salone Europeo della Ricerca di Trieste** (26-28 September 2014) with the talk : **MASSIMIZZARE L'ENERGIA ACQUISITA DA NANOPARTICELLE:SOLE, COLORE E NANOMATERIALI = ENERGIA.**

Conferences

ISOC 2013, 30 August-3 September 2013, Camerino (MC), Italy. **Sensitization of monolayer transparent TiO₂ thin films with metal-porphyrin dyes for DSSC applications. Equilibrium and kinetic aspects.** **M. Zannotti**, C. A. D'Amato, R. Giovannetti.

International Conference on Diamond and Carbon Materials, 2-5 September 2013, Riva del Garda (TN), Italy. **Interaction of Porphyrins with Carbon Nanotubes.** **M. Zannotti**, R. Giovannetti, R. Gunnella, L. Petetta, S. Ferraro.

XXIV Analytical Chemistry Congress of Italian Chemical Society, 15-19 September, Sestri Levante (GE), Italy. **Oxygen transfer in a gas-liquid system : kinetic influence of water salinity**, M. Zannotti, R. Giovannetti, S. Ferraro, S. Piccinini ISBN 9788890767012.

FNMA '14, 1-5 September, Camerino (MC), Italy. **Porphyrins functionalized MWCNTs and their interaction with TiO₂ nanoparticles surface**. R. Giovannetti, M. Zannotti, C. A. D'Amato, E. Rommozzi, S. Ferraro ISBN 978-83-937979-0-5.

FNMA '14, 1-5 September, Camerino (MC), Italy. **Characterization and environmental application of Polypropylene coated nano-TiO₂ in wastewaters** R. Giovannetti, C. A. D'Amato, E. Rommozzi, M. Zannotti, M. Minicucci, R. Gunnella ISBN 978-83-937979-0-5.

4th Scientific Day of the School of Science and Technology, 11 June 2014, Camerino (MC) Italy, **Optimization of Photocathode for Tandem-Dye Solar Cell** M. Zannotti, E. Gibson, R. Giovannetti, C. Wood, G. Summers ISBN: 9788867680177.

SPEA 8, 8th European Meeting on Solar chemistry and Photocatalysis: environmental application, 25-28 June 2014, Thessaloniki, Greece. **Visible light photoactivity of polypropylene coted Nano-TiO₂ for dyes degradation**, C. A. D'amato, E. Rommozzi, M. Zannotti, R. Giovannetti.

SPEA 8, 8th European Meeting on Solar chemistry and Photocatalysis: environmental application, 25-28 June 2014, Thessaloniki, Greece. **Model of photocatalytic Degradation of Alizarin Red-S Polypropylene coated nano-TiO₂**, C. A. D'amato, E. Rommozzi, M. Zannotti, R. Giovannetti, S. Ferraro.

Seminars

"FREE HPLC/UHPLC Method Development Seminar", Phenomenex; Bologna 11th October 2011.

"Web Training@Unicam2012", University of Camerino, Camerino, 16-17-19-20 July, 2012.

"English for writing research papers", University of Camerino, Camerino, 18-19-20 June, 2012.

"Communication of science to public", part 2 – how to write a scientific article for the general public, University of Camerino, 28th June.

Co-supervisor

Co-Supervisor of Master Degree's thesis entitled: Optimization of Photocatalytic reactor for dyes degradation using PP coated Nano-TiO₂, 17th October 2013, Università di Camerino.

Co-Supervisor of Master Degree's thesis entitled: Kinetic Model for Photocatalytic Degradation of Alizarin-Red S by PP coated nano-TiO₂, 11th April 2014, Università di Camerino.

Teaching assignments

ENVIROMENTAL CHEMISTRY CHIM/12 – Geoenviromental resources and risks 30 hours

ANNEXES