

## Giuseppe Cappelletti

### PERSONAL INFORMATION

**Office:** Dipartimento di Chimica, Università degli Studi di Milano  
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### WORK EXPERIENCE

- 2016 - present **Associate Professor (03-A2)**  
Dipartimento di Chimica, Università degli Studi di Milano
- 2008 - 2016 **Assistant Professor**  
Dipartimento di Chimica, Università degli Studi di Milano

### EDUCATION AND TRAINING

- 2004 - 2008 **Post-Doc Fellow**  
Dipartimento di Chimica, Università degli Studi di Milano  
Project title: “*Sintesi di nanoparticelle di ossidi metallici attraverso percorsi sol-gel e meccanismi templati con tensioattivi. Relazioni tra i parametri della reazione e le proprietà chimico-fisiche, massive, morfologiche e superficiali del materiale*”. Supervisor: Prof. S. Ardizzone
- 2001 - 2005 **PhD in Chemical Sciences**  
Dipartimento di Chimica, Università degli Studi di Milano  
Title: “*Nanocrystalline titanium oxide. General criteria for the simultaneous control of bulk, surface and interfacial features*” (Supervisor: Prof. S. Ardizzone)
- 1996 - 2001 **Master Degree in Chemistry (110/110 Cum Laude)**  
Dipartimento di Chimica, Università degli Studi di Milano  
Title: “*Elettrodi di Ag policristallino elettrodeposto. Adsorbimento, in competizione, di alogenuri inorganici e organici*” (Supervisor: Prof. S. Ardizzone)
- 1991 - 1996 **High School Diploma (50/60)**  
Liceo Marie Curie, Meda

### 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/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user  
[Common European Framework of Reference for Languages](#)

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

Levels: Basic user - Independent user - Proficient user  
[Digital competences - Self-assessment grid](#)

- Good command of office suite (word processor, spread sheet, presentation software)
- Good command of Origin® Lab for graph editing

## ADDITIONAL INFORMATION

### Scientific Research Activity

He is the co-author of more than **100 articles**, all published on international journals with high impact factor, and **130 Communications** in National and International Conferences.

#### ISI Citation Metrics (03/04/2019)

Author ID: 56274806100

Total Documents: 102

H index: 27

Overall citations: 2406

The research activity can be divided into the following contents:

- *Electrocatalytic studies*  
The research activity started with a systematic study of adsorption and electroreduction of organic halides on silver single-crystals and polycrystalline electrodes.  
*J. Electroanal. Chem.* 532 (2002) 285-293; *Russian J. Electrochem.* 39(2) (2003) 170-176; *J. Electroanal. Chem.* 552 (2003) 213-221; *Electrochimica Acta*, 48 (2003) 3789-3796.
- *Composite materials for sensors in gas and liquid media. Thin layers for medical applications.*  
The activity is aimed at developing of nanoparticles to be used in sensors for urban pollution control. Deposition of thin layers also for the mass-imaging technique in order to evaluate the drugs distribution in tumor tissues.  
*J. Nanosci. Nanotechnol.* 10(12) (2010) 8367-8374; *International patent* "Gas sensor and gas-sensitive metal oxide powder" n° PCT/EP2006/010892; *RSC Advances* 5(87) (2015) 71210-71214; *Analytical Bioanalytical Chem.* 408(26) (2016) 7339-7349; *Scientific Reports* 6 (2016) Article number 37027; *Nanomaterials* 7 (2017) 71
- *Synthesis of ceramic materials*  
Allochromic ceramic pigments through pathways involving sol-gel stages in order to obtain the desired characteristics of the pigments at much less severe temperatures and at the same time with development of colors having tone and intensity not obtainable with traditional ceramic methods. Pure sulfated zirconia catalysts and promoted with metals for reactions in liquid phase.  
*Phys. Chem. Chem. Phys.* 4 (2002) 5683-5689; *J. European Ceramic Soc.* 24(14) (2004) 3603-3611; *J. Catal.* 227 (2004) 470-478; *Surface Interface Anal.* 36 (2004) 745-748; *J. European Ceramic Soc.* 25(6) (2005) 911-917; *J. Phys. Chem. B* 109(47) (2005) 22112-22119; *Applied Catalysis A: General*, 360 (2009) 137-144

- Synthesis of nanomaterials for energetic applications*  
 Synthesis of nanostructured electrocatalytic materials (iridium doped tin oxide and tantalum) for the cathodic production of hydrogen and the anodic evolution of oxygen in an acidic environment.  
*Electrochim. Acta* 50 (2005) 4419-4425; *J. Nanoparticle Res.* 8 (2006) 653-660; *J. Electroanal. Chem.* 589 (2006) 160-166; *J. Applied Electrochem.* 38(7) (2008) 973-978; *J. Applied Electrochem.* 39 (2009) 2093-2105; *Chem. Phys. Lett.* 496 (2010) 109-112; *J. Mater. Chem.* 22 (2012) 8896-8902; *J. Phys. Chem. A* 116 (2012) 6497-6504; *ACS Catalysis* 5(9) (2015) 5104-5115; *Nanomaterials* 6(1) (2016) 1-15; *J. Power Sources* 325 (2016) 116-128; *J. Electroanal. Chem.* 808 (2018) 439
- Synthesis of nanocrystalline TiO<sub>2</sub> with tailored properties for water and air remediation*  
 The general aim is the modelling and designing titania nanoparticles with proper morphology, size, shape, and texture by different synthetic procedures, in order to probe, tune and optimize the investigated physical properties. This research deals with traditional and unconventional syntheses for photocatalytic (TiO<sub>2</sub> and its use in both liquid and gas phase reaction, also assisted by UV and solar irradiation) applications.  
*Phys. Chem. Chem. Phys.* 5 (2003) 1689-1694; *Phys. Chem. Chem. Phys.* 6 (2004) 3535-3539; *J. Phys. Chem. B* 109(10) (2005) 4448-4454; *Surface Interface Anal.* 38 (2006) 452-457; *Appl. Surface Sci.* 253 (2006) 519-524; *J. Phys. Chem. C* 111 (2007) 13222-13231; *J. Hazar. Mater.* 153 (2008) 1136-1141; *Appl. Catal. B: Environ.* 78 (2008) 193-201; *Environ. Sci. Technol.* 42(17) (2008) 6671-6676; *J. Phys. Chem. C* 112 (2008) 17244-17252; *Nanoscale Res. Lett.* 4 (2009) 97-105; *Catal. Today* 144 (2009) 31-36; *J. Mater. Res.* 25(1) (2010) 96-103; *J. Photochem. Photobio. A: Chem.* 211 (2010) 185-192; *Electrochem. Comm.* 12 (2010) 1013-1016; *Chem. Comm.* 47(9) (2011) 2640-2642; *Catal. Today* 161 (2011) 169-174; *J. Nanomater. Vol.* 2011 (2011), Article ID 597954, 9 pages; *Environ. Chem. Lett.* 10 (2012) 55-60; *J. Phys. Chem. C* 116 (2012) 1764-1771; *J. Nanoparticle Res.* 14 (2012) 1086-1101; *Appl. Mater. Interfaces* 4 (2012) 5997-6004; *Chem. Eng. J.* 225 (2013) 416-422; *Catal. Today* 209 (2013) 8-12; *Electrocatal.* 4 (2013) 306-311; *Chinese J. Chem.*, 32(12) (2014) 1195-1213; *Chem. Comm.* 51(52) (2015) 10459-10462; *Appl. Catal. B: Environ.*, 178 (2015) 233-240; *J. Phys. Chem. C* 119(42) (2015) 24104-24115; *Photochem. Photobio. Sci.* 16(1) (2017) 60-66; *J. Photochem. Photobio. A: Chemistry* 332 (2017) 534-545; *Environ. Sci. Pollution Res.* 24(9) (2017) 8287-8296; *Catalysis Today* 281 (2017) 38-44; *Applied Surface Sci.* 424 (2017) 198-205
- Structural, morphological, electronic characterizations and ab-initio simulations of oxide-based nanomaterials*  
 Structural studies with synchrotron light (XRD, EXAFS), unconventional electrochemical measurements (photovoltage and photocurrent), EPR, DFT theoretical calculations (Density Functional Theory) of DOS (Density of electronic States) to better understand how the addition of dopants can influence the chemical-physical characteristics of oxidative matrices.  
*J. Electroanal. Chem.* 621 (2008) 185-197; *Appl. Catal. B: Environ.* 96 (2010) 314-322; *J. Phys. Chem. C* 115 (2011) 6381-6391; *J. Phys. Chem. C* 116 (2012) 23083-23093; *J. Nanoparticle Res.* 14 (2012) 1301-1312; *J. Appl. Electrochem.* 43 (2013) 217-225; *J. Alloys Comp.* 561 (2013) 109-113; *Electrochimica Acta* 146 (2014) 403-410; *J. Phys. Chem. C* 118(9) (2014) 4797-4807; *J. Phys. Chem. C* 118(41) (2014) 24152-24164

- *Functionalization of nanocrystalline TiO<sub>2</sub> with hydrophobic molecules. Superhydrophobic and superhydrophilic transparent layers also for the protection and conservation of natural and artificial stone materials*  
Modulation of the hydrophilicity/hydrophobicity characteristics. These characteristics can be exploited either in self-cleaning fields or to formulate photoactive TiO<sub>2</sub> nanometric in complex systems such as asphalts, paints and cements. Particular attention is given to the protection of marble and mortar of artistic interest with transparent hybrid layers.  
*J. Phys. Chem. C* 114 (2010) 8287-8293; *J. Phys. Chem. C* 115 (2011) 18649-18658; *J. Phys. Chem. C* 116 (2012) 26405-26413; *J. Colloid Interface Sci.* 389 (2013) 284-291; *J. Mater. Sci.* 49(7) (2014) 2734-2744; *J. Nanoparticle Res.* 15 (2013) 2087-2096; *Catal. Today* 230 (2014) 35-40; *J. Appl. Phys. A*, 116(1) (2014) 341-348; *Prog. Org. Coat.* 78 (2015) 511-516; *Analyst* 140(5) (2015) 1486-1494; *J. Phys. Chem. C* 119(27) (2015) 15390-15400; *Environ. Sci. Pollution Res.* 22(22) (2015) 17733-17743; *Environ. Sci. Pollution Res.* 24(14) (2017) 12608-12617; *Progress in Organic Coatings* 114 (2018) 47-57; *Chemistry Letters* 47(3) (2018) 280

### Scientific Collaborations Network

- At the Dipartimento Di Chimica, Università degli Studi di Milano, Milan, Italy (Prof. S. Ardizzone, Prof. S. Rondinini, Prof. A. Vertova, Dr. L. Falciola, Dr. M. Ceotto, Dr. L. Lo Presti, Prof. C. L. Bianchi, Dr. C. Pirola, Prof. C. Oliva, Prof. Annunziata, Prof. Benaglia, Prof. Raimondi).
- Other Departments: National and International Academies (Prof. Roveri, Dipartimento di Chimica, Università di Bologna; Prof. Navarrini, Dipartimento di Chimica, Materiali e Ingegneria Chimica, Politecnico di Milano; Prof. Scardi, Dr. Leoni, Prof. Gialanella, Dipartimento di Ingegneria dei Materiali e Tecnologie Industriali, Università di Trento; Prof. Penazzi, Dr. Francia, Dipartimento di Scienza dei Materiali e Ingegneria Chimica, Politecnico di Torino; Dr. Cerrato, Dipartimento di Chimica, Università di Torino; Dr. Ricci, Dipartimento di Fisica, Università di Cagliari; Dr. Cannas, Prof. Musinu, Dipartimento di Scienze Chimiche, Università di Cagliari; Prof. Mustarelli, Prof. Capsoni, Dipartimento di Chimica Fisica, Università di Pavia; Prof. Bremner, University of Abertay Dundee, School of Contemporary Sciences, Dundee, UK; Prof. D. Poelmann, Prof. H. Poelmann, Department of Solid State Sciences, University of Ghent (Belgium); Prof. Schubert, University of Jena (Germany); Dr. Johansson, Prof. Hagfeldt, Dr. Boschloo, Department of Physical and Analytical Chemistry, Uppsala University, (Sweden); Dr. Hoepfener, Eindhoven University Technology (Netherlands); Prof. Bagdachi, Professor, College of Technology, Ypsilanti, Eastern Michigan University); Professor Antonio Tricoli, Australian National University.

### Teaching Activities

He teaches "Laboratory of Physical Chemistry" for the 3-Years Degree in Chemistry (2013-present) of the University of Milano and a course in "Physical Chemistry of Formulations" (2009-present) for the Master Degree in Industrial Chemistry. He has taught "Chemical methods for biotechnology" (2012-2017) for the 3-Years Degree in Industrial and Environmental Biotechnologies.

He is supervisor or co-supervisor of more than 100 Research Thesis.

### Awards, Fundings and Scholarships

- PRIN 2008 (PF9TWZ\_002): "Li/air batteries: new nanostructured materials for the oxygen electrode" (24 months);
- CARIPLO 2010 (0506); "New nanostructured materials for innovative lithium-air, high-energy rechargeable batteries" (24 months);
- Regione Lombardia ATP 2009: "Nuovi compound a base PTFE con l'ausilio di nanopromoter polimerici/inorganici per un'ampia gamma di applicazioni. Ottimizzazione delle performance meccaniche, chimiche, termiche e dielettriche dei prodotti finiti" (24 months);
- Regione Lombardia ENERGIA E AMBIENTE 2009: "Free-flow high density PTFE (FF-HD) da stampaggio tramite nuova tecnologia a basso impatto ambientale" Fondo Energia ed ambiente, Progetto Regione Lombardia 2009 (24 months);
- Regione Lombardia INTEC 3 2007: "Advanced Self-cleaning and Photocatalytic Coatings: nuovi formulati vernicianti eco-compatibili aventi eccezionali proprietà nella degradazione fotocatalitica di inquinanti atmosferici" (24 months);
- CARIPLO 2013: "Nanostructured initiator for matrix-free, surface-based mass spectrometry imaging of antitumor drugs in tissue" (24 months)

**2002:** the Master Thesis Award "Solartron-Data Line" of the Electrochemical Division of the Italian Chemical Society.

**2006:** the Doctorate Award "Fondazione Oronzio e Niccolò De Nora" of the Electrochemical Division of the Italian Chemical Society.

### Publishing Activity

He acts as Referee of international scientific journals (Journal of Physical Chemistry B/C, Applied Catalysis A/B, Journal of Hazardous Materials, Journal of Applied Electrochemistry, Ultrasonic Sonochemistry, Journal of European Ceramic Society, Journal of Photochemistry and Photobiology, Chemical Engineering Journal, Chemistry of Materials, Journal of Nanoparticle Research, Materials Chemistry and Physics, Industrial & Engineering Chemistry Research, Journal of Alloys and Compounds).

2017-2018: Guest Editor for the Special Issue entitled "*Synthesis and Applications of Nanomaterials for Photocatalysis and Electrocatalysis*" in *Nanomaterials*

### Personal information

I authorize the handling of personal information in this curriculum, according to D.Lgs n. 196/03 and following modifications and Regulations EU 679/2016 (General Regulations concerning Data Protection or GRDP) and art. 7 of University Regulations concerning protection of personal information.

I authorize, according to D.lgs 14/03/2013 n. 33 concerning transparency, in case of conferment of the position and of the fellowship, the publication of this curriculum in the web site of Università degli Studi di Milano in the section "Amministrazione trasparente", "Consulenti e collaboratori".

03/04/2019

Signature

