

## ESPERIENZA PROFESSIONALE /WORK EXPERIENCE

Se dipendente CNR indicare:	<b>N. MATRICOLA 10090</b> <b>QUALIFICA RICERCATORE</b> <b>LIVELLO III FASCIA II</b>
In ordine di data /Dates (from – to)	From 2005 - present
Nome e indirizzo del datore di lavoro / Name and address of employer	Consiglio Nazionale Delle Ricerche (CNR) Piazzale Aldo Moro 7, 00185 Roma
Tipo o settore di attività / Type of business or sector	Public Research Organization
Funzione o posto occupato / Occupation or position held	Full Staff Researcher
Principali mansioni e responsabilità / Main activities and responsibilities	<p>Currently he is involved at CNR IPCF Bari Division in research activities dealing with nanocrystal (NC) synthesis by wet chemistry (photoactive or magnetic oxides, II-VI semiconductors, metals), characterization (TEM, SEM, AFM, FT-IR, UV-Vis-NIR, PL) and their surface engineering. He is interested in NC incorporation in polymer matrices, application in optoelectronic, self-assembly, biological and environmental fields.</p> <p>He has strong background in the <b>application of photoactive NCs in degradation of organic/inorganic pollutants in water and gas matrices and in the preparation and characterization of NC-based self-cleaning coatings</b>. He has been involved in 7 EU projects (6th and 7th FP and H2020), 9 Italian projects and 6 projects funded by Apulia Region. He is the scientific director of research contracts with multinational companies aiming at the synthesis and characterization of innovative nanomaterials. He has co-authored over 100 papers (including over 75 JCR publications, 7 book chapters, 1 international patent) and more than 170 contributions to National and International Congresses and Symposia also with invited talks.</p> <p>H index: Scopus: 22; Web of Science: 21; Google Scholar: 24</p> <p><b>Management of National projects and Industrial Research Projects:</b></p> <ul style="list-style-type: none"><li>○ Scientific Responsible for CNR IPCF of the FONTANAPULIA Project “<b>F</b>Otocatalizzatori <b>N</b>anos<b>T</b>rutturati e <b>R</b>Adiazio<b>N</b>e UV per un’<b>A</b>cqua più <b>P</b>ULitA” (WOBV6K5 ranked 1st), Call “InnoNetwork” Regione Puglia. <b>Starting date 1<sup>st</sup> July 2018</b>. (budget CNR IPCF Bari 200.000 Euro)</li><li>○ Scientific Responsible for CNR IPCF of research contract with Plasmapps Srl (September 2017 – September 2018)</li><li>○ Scientific Responsible for CNR IPCF of research contracts with Bridgestone TCE from December 2012 to January 2017 (prot. n. 7488 del 23/11/2012 e 4605 del 29/9/2016)</li><li>○ Scientific Responsible for CNR IPCF of NanoApulia Projects “<b>N</b>ANOfotocatalizzatori per un’<b>A</b>tmosfera più <b>P</b>ULitA” Codice Progetto MDI6SR1 (17/11/2015 – 16/11/2017 Regione Puglia (AD n. 497 del 18/11/2015) Call “Aiuti a sostegno dei Cluster Tecnologici Regionali” AD n. 399 del 28/07/2014 e ss.mm.ii. (budget CNR IPCF Bari 276.095,53 Euro)</li><li>○ Scientific Responsible for CNR IPCF of research contracts with CTG-Italcementi Group from 07/2012 a 07/2015 (prot. n. 4978 del 10/07/2012; prot. 5796 del 17/09/2013; 4943 del 12/09/2014)</li></ul> <p><b>Patent</b></p> <ul style="list-style-type: none"><li>● “<b>ELECTRODE MATERIAL FOR LITHIUM AND LITHIUM ION BATTERIES</b>” <i>International application PCT/EP2011/059148 WO2012163426(A1)</i></li></ul>

### **Other scientific activities**

Member of the editorial board of :

- "Journal of Chemistry" (ISSN online: 2090-9071; doi:10.1155/2962),
- "Journal of Nanostructure in Chemistry" (ISSN online: 2193-8865),
- "Crystals " (ISSN 2073-4352).

Guest Editor of the following Special Issues and Collections:

- "Nanocrystals" *Crystals* (ISSN 2073-4352)  
[www.mdpi.com/journal/crystals/special\\_issues/Nanocrystals](http://www.mdpi.com/journal/crystals/special_issues/Nanocrystals)
- "Colloidal Nanocrystals: Synthesis, Characterization and Application" *Crystals* (ISSN 2073-4352) [www.mdpi.com/journal/crystals/special\\_issues/colloidal\\_nanocrystals](http://www.mdpi.com/journal/crystals/special_issues/colloidal_nanocrystals)
- "Application of Photoactive Nanomaterials in Degradation of Pollutants" *Materials* (ISSN 1996-1944).  
[www.mdpi.com/journal/materials/special\\_issues/photoactive\\_nanomaterials](http://www.mdpi.com/journal/materials/special_issues/photoactive_nanomaterials)
- "Nanocomposites of Polymers and Inorganic Particles" *Molecules* (ISSN 1420-3049).  
[www.mdpi.com/journal/molecules/special\\_issues/Nanocomposites-Particles](http://www.mdpi.com/journal/molecules/special_issues/Nanocomposites-Particles)

Referee for several high impact factor journals (ACS, Elsevier, RSC, Springer, etc.)

Organizing Committees :

- IX Convegno Nazionale INSTM Scienza E Tecnologia Dei Materiali Bari, 30 June – 3 July 2013
- ORION Summer School, Ostuni (Br), Italy 5-10 June 2011
- XX Congresso Nazionale Società Italiana FotoBiologia, Locorotondo, 4-5 June 2009

Chairman

- Round Table "FotoBiologia e Nanostrutture" - XX Congresso Nazionale Società Italiana FotoBiologia, Locorotondo, 4-5 June 2009
- 3rd Forum Nazionale Giovani Ricercatori di Scienza e Tecnologia dei Materiali Padova, 22-24 March 2010

## **ISTRUZIONE E FORMAZIONE / EDUCATION AND TRAINING**

Dates (from – to)	01/10/2001 – 31/10/2004
Name and type of organisation providing education and training	Università degli Studi di Bari
Principal subjects covered	Nanocrystals synthesis and characterization. Photodegradation of pollutants
Title of qualification awarded	PhD in Chemistry of Innovating Material. Ph.D. Thesis "Nanomaterial for Environmental Application" Supervisor Prof. A. Agostiano
Level in National classification	Not available
Dates (from – to)	01/10/1994 – 20/07/2001
Name and type of organisation providing education and training	Università degli Studi di Bari
Principal subjects covered	Nanocrystals synthesis and characterization. Photodegradation of pollutants
Title of qualification awarded	Master Degree in Chemistry (marks 107/110). "Preparation and characterization of nanosized semiconductors for environmental applications"
Level in National classification	Not available

## RESEARCH ACTIVITIES

### Research sectors

- Synthesis of colloidal nanocrystals with control over size, shape, size distribution and crystalline phase
- Application of nanostructured materials in UV and UV-Vis induced photocatalytic degradation of pollutants in water and gas matrices
- Post-synthesis surface functionalization of nanoparticles for incorporation in organic or hybrid matrices and integration in devices.
- Nanoparticle characterization (UV-vis-NIR and PL spectroscopy, FTIR, XPS, TEM, SEM, AFM, XRD).
- Development of the deposition of nanoparticles onto different surfaces for the preparation of self-cleaning and protective coatings.

Publicazioni/ Books and Articles  
Selected publication in the last 5 years (full list of publication at <https://scholar.google.it/citations?user=oQ26xCMAAAJ&hl=it>)

- 1)** Fusco, C.; Casiello, M.; Catucci, L.; Comparelli, R.; Cotugno, P.; Falcicchio, A.; Fracassi, F.; Margiotta, V.; Moliterni, A.; Petronella, F.; D'Accolti, L.; Nacci, A., TiO<sub>2</sub>@PEI-Grafted-MWCNTs Hybrids Nanocomposites Catalysts for CO<sub>2</sub> Photoreduction. *Materials* 2018, 11, 307.
- 2)** Truppi, A., Petronella, F., Placido, T., Striccoli, M., Agostiano, A., Curri, M. and Comparelli, R., Visible-Light-Active TiO<sub>2</sub>-Based Hybrid Nanocatalysts for Environmental Applications, *Catalysts*, 2017, 7, 100 (**invited review**)
- 3)** F. Petronella, A. Truppi, T. Sibillano, C. Giannini, M. Striccoli, R. Comparelli, M.L. Curri, Multifunctional TiO<sub>2</sub>/Fe<sub>x</sub>O<sub>y</sub>/Ag based nanocrystalline heterostructures for photocatalytic degradation of a recalcitrant pollutant, *Catal. Today*, 284 (2017) 100-106. (**invited manuscript**)
- 4)** F. Petronella, A. Truppi, C. Ingrosso, T. Placido, M. Striccoli, M.L. Curri, A. Agostiano, R. Comparelli, Nanocomposite materials for photocatalytic degradation of pollutants, *Catal. Today*, 281, Part 1 (2017) 85-100. (**invited review**)
- 5)** F. Petronella, A. Pagliarulo, M. Striccoli, A. Calia, M. Lettieri, D. Colangiuli, M. Curri, R. Comparelli, Colloidal Nanocrystalline Semiconductor Materials as Photocatalysts for Environmental Protection of Architectural Stone, *Crystals*, 7 (2017) 30. (**invited manuscript**)
- 6)** Ingrosso, C., Bianco, G.V., Pifferi, V., Guffanti, P., Petronella, F., Comparelli, R., Agostiano, A., Striccoli, M., Palchetti, I., Falciola, L., Curri, M.L. and Bruno, G., Enhanced photoactivity and conductivity in transparent TiO<sub>2</sub> nanocrystals/graphene hybrid anodes, *Journal of Materials Chemistry A*, 2017, 5, 9307-9315, 10.1039/C7TA01425B,
- 7)** F. Petronella, M.L. Curri, M. Striccoli, E. Fanizza, C. Mateo-Mateo, R.A. Alvarez-Puebla, T. Sibillano, C. Giannini, M.A. Correa-Duarte, R. Comparelli, Direct growth of shape controlled TiO<sub>2</sub> nanocrystals onto SWCNTs for highly active photocatalytic materials in the visible, *Appl. Catal. B*, 178 (2015) 91-99.
- 8)** S. Murgolo, F. Petronella, R. Ciannarella, R. Comparelli, A. Agostiano, M.L. Curri, G. Mascolo, UV and solar-based photocatalytic degradation of organic pollutants by nano-sized TiO<sub>2</sub> grown on carbon nanotubes, *Catal. Today*, 240, Part A (2015) 114-124.
- 9)** C. Ingrosso, C. Esposito Corcione, R. Striani, R. Comparelli, M. Striccoli, A. Agostiano, M.L. Curri, M. Frigione, UV-Curable Nanocomposite Based on Methacrylic-Siloxane Resin and Surface-Modified TiO<sub>2</sub> Nanocrystals, *ACS Appl. Mater. Interfaces*, 7 (2015) 15494-15505.
- 10)** D. Bresser, G.-T. Kim, E. Binetti, M. Striccoli, R. Comparelli, S. Seidel, D. Ozkaya, M. Copley, P. Bishop, E. Paillard, S. Passerini, Transforming anatase TiO<sub>2</sub> nanorods into ultrafine nanoparticles for advanced electrochemical performance, *J. Power Sources*, 294 (2015) 406-413.
- 11)** F. Petronella, S. Rtimi, R. Comparelli, R. Sanjines, C. Pulgarin, M.L. Curri, J. Kiwi, Uniform TiO<sub>2</sub>/In<sub>2</sub>O<sub>3</sub> Surface Films Effective in Bacterial Inactivation under Visible light, *J. Photochem. Photobiol. A-Chem.*, 279 (2014) 1-7.
- 12)** Petronella F, Diomede S, Mascolo G, Agostiano A, Curri ML, Comparelli R Photodegradation of Nalidixic Acid assisted by TiO<sub>2</sub> nanorods/Ag nanoparticles based catalyst. *CHEMOSPHERE*, 91, 941-947, (2013) doi: 10.1016/j.chemosphere.2013.01.107

### ULTERIORI INFORMAZIONI / ADDITIONAL INFORMATION

Worth mention at "Semerano Award" 2005 – Award for the best Italian Ph.D. Thesis in Physical-Chemistry

Winner of the Graduate Student Award at E-MRS Spring Meeting (June 18th-23rd 2001) Strasbourg (F) "Colloidal oxide nanoparticles for the photocatalytic degradation of organic dye"

### TRATTAMENTO DEI DATI

Page 3 - Curriculum vitae  
di Roberto Comparelli

Il D.Lgs 30/06/2003, n. 196 "Codice in materia di protezione dei dati personali" regola il trattamento dei dati

**PERSONALI, INFORMATIVA E  
CONSENSO**

personali, con particolare riferimento alla riservatezza, all'identità personale e al diritto di protezione dei dati personali; l'interessato deve essere previamente informato del trattamento.

La norma in considerazione intende come "trattamento" qualunque operazione o complesso di operazioni concernenti la raccolta, la registrazione, l'organizzazione, la conservazione, la consultazione, l'elaborazione, la modifica, la selezione, l'estrazione, il raffronto, l'utilizzo, l'interconnessione, il blocco, la comunicazione, la diffusione, la cancellazione e la distruzione di dati, anche se non registrati in una banca dati.

In relazione a quanto riportato, autorizzo il CNR al trattamento dei dati contenuti nel presente *curriculum vitae* e nella documentazione della quale fa parte integrante, sollevandolo da ogni responsabilità e autorizzandolo alla pubblicazione, sul sito web del CNR, della relazione inerente alle proprie ricerche svolte nell'ambito del Progetto finanziato dal CNR. Inoltre acconsento all'aggiornamento delle informazioni intranet che mi riguardano sia relative le pubblicazioni sia alle ricerche svolte.

*The Undersigned hereby authorises the CNR to utilize and store the personal sensitive data contained in the attached Curriculum Vitae for the purposes of bilateral Joint research projects and within the framework of the Data protection Act No. 196, dates 30 June 2003 as promulgated by the Italian Government.*

( barrare la casella)

X Si, acconsento

*Roberto Comparelli*