



**Riccardo Scarfiello,**  
PhD

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## Bibliometrics:

H index 9

225 total citations without self-citations

## Current Position:

Permanent researcher Level III since 01-12-2021 at the Institute of Nanotechnology (CNR Nanotec) Lecce

### 01/04/2021 to 30/11/2021

**Fixed-term contract** as employee VII level at Klopman International S.R.L. in R&D department within the PON-Proget ECOTEC: PON ARS01\_00951 called “Fibre e tessuti intelligenti ed ECOsostenibili per l’abbigliamento TECnico e l’alta moda”, CUP B26G18001010005. The working experienced regarded synthesis and characterization of novel materials to be integrated in smart optoelectronic and chromogenic textile-embedded devices

### 05/11/2018 to 09/02/2021

**Research fellow (type A)** at the Institute of Nanotechnology CNR – Nanotec of Lecce (prot. 3981 of 20/12/2020) within the project called “TECNOMED – Tecnopolo di Nanotecnologia per la Medicina di Precisione” (CUP B84I18000540002). The research activity mainly regarded synthesis and characterizations of inorganic colloidal nanocrystals to be adopted as diagnostic biomedical tools for computing tomographic technique for precision medicines.

### 04/11/2016 to 03/11/2018

**Research fellow (type A)** at the Institute of Nanotechnology CNR – Nanotec of Lecce (prot. number 0003227 of 04/11/2016; prot. number 0001246 of 27/04/2018 and prot. number 0002346 of 02/08/2018) within the project called “COGEA – “Composite Certification in General Aviation”, (founding code OES4AM4 CUP B38C14002510008). The research activity mainly regarded calorimetric and thermogravimetric analysis of nanostructured coated surfaces.

### 05/02/2016 to 03/11/2016

**Research fellow (type A)** at the Institute of Nanotechnology CNR – Nanotec of Lecce prot. NANOTEC-CNR 0002251 of 30/11/2015 within the project called “2D-ECO – Two-Dimensional colloidal metal dichalcogenides based energy-conversion photovoltaics” (founding code RBSI14FYVD – CUP B82L15000950008 of MIUR – SIR). The research activity mainly regarded synthesis and characterization of inorganic nanocrystals based on innovative approached for developing colloidal  $W_{18}O_{49}$  and  $WS_2$  as free-standing

### 01/07/2013 to 15/11/2015

**Co.Co.Pro. Contract** at Centre for Biomolecular Nanotechnology of Italian Institute of Technology (IIT-Lecce) prot. 0041212/13 of 25/06/2013, prot. 0019125/14 of 26/06/2014 and prot. 0014084/15 of 13/05/2015 within the European project called “PON MAAT” (founding code EPNZ001601). The research activity mainly regarded synthesis and characterization of solution processable inorganic nanostructures to be adopted for nanostructured electrodes for photovoltaic and electrochromic applications.

## EDUCATION

11/09/2013 – 27/09/2016

**PhD. XVIII cycle**, in Biomolecular Nanotechnology at the department of Mathematic and Physic Ennio De Giorgi, at University of Salento with the Thesis title of *Development of colloidal anisotropic tungsten oxide and sulphide nanocrystals for energy applications*.

15/03/2012

**Master degree in Photochemistry and molecular Materials** (110/110 cum Laude) at the University of Bologna by defending the thesis with title *Click chemistry: a synthetic approach toward graphene like material*

17/12/2009

**Bachelor degree in Chemistry of Materials** (110/110 cum Laude) at the University of Bologna by defending the thesis with title “*Analisi sperimentale di meccanismi di corrosione di coating superficiali per materiali candidate per reattori nucleari di IV generazione*”.

## Main research activity:

Riccardo Scarfiello joined the National Nanotechnology Laboratory (NNL) of CNR Nanoscience Institute, Lecce on 02/2013, Italy, as Junior Researcher until 11/2013. He started as Ph.D student in Bio-Molecular Nanotechnologies supported by the University of Salento, completed on 27-10-2016 carried out partially in (IIT) Italian Institute of Technology – Center for Biomolecular Nanotechnologies, Arnesano (LE) and partially in the National Nanotechnology Laboratory (NNL) of CNR Nanoscience Institute. During his PhD he enriched his competences and skills on surfactant assisted non hydrolytic synthesis and characterizations of inorganic colloidal nanocrystals (mainly substoichiometric  $\text{WO}_{2.72}$  and  $\text{TiO}_2$ ,  $\text{CuS}$  and  $\text{Cu}_{2-x}\text{S}$ ) in the form of soluble free-standing nanoparticles. From this research activity, strong knowledges in the field of electrochromic devices based on nanostructured electrodes has been achieved. Afterwards he continued the activity in the newly founded Institute of Nanotechnology, Nanotec in Lecce (Italy) on synthesis and characterization of advanced 2D colloidal nanocrystals architectures (mainly  $\text{WS}_2$ ,  $\text{WSe}_2$  and  $\text{TiS}_2$ ) in form of freestanding nanoparticles as well as polytypic hetero-structures, developing an innovative synthetic protocol able to produce 2D- $\text{WS}_2$  nanocrystals in a easily scalable way unlike conventional surfactant assisted approach. Afterword, he moved to the study of modified nanocrystal surfaces adopting substoichiometric  $\text{WO}_{2.72}$  as case of study of computer tomography diagnostic applications. He joined and cooperated as visiting junior researched with Liberato Manna's group to develop a new chemical path to achieve to a silica-based inorganic protecting shell of full inorganic fluorescent perovskite material. The most recent research activity is focused on the study of novel synthetic protocol that allows the production of inorganic water dispersible nanostructures by employing microwave (MW) irradiation, without scarify control over size, shape and chemical composition. The absence of long alkyl organic shell deposited onto nanocrystal's surfaces allows simple and large area deposition technique in order to move from synthesized nano-chemicals to lab scale optoelectronic devices with air-brush technique or similar.