## PERSONAL INFORMATION

# Samuele Porro

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SSD FIS/03

*Sex* M | *Date of birth* 18/03/1978 | *Nationality* Italian

| Enterprise | University | EPR |
|---|---|---|
| ☐ Management Level | ☐ Full professor | ☐ Research Director and 1st level Technologist / First Researcher and 2nd level Technologist / Principal Investigator |
| ☐ Mid-Management Level | ☒ Associate Professor | ☐ Level III Researcher and Technologist |
| ☐ Employee / worker level | ☐ Researcher and Technologist of IV, V, VI and VII level / Technical collaborator | ☐ Researcher and Technologist of IV, V, VI and VII level / Technical collaborator |

## WORK EXPERIENCE

10/2019 - present

### Associate Professor

Politecnico di Torino, DISAT department, Torino, Italy

- Teaching: regular teacher of General Physics 1
- Research: thin film and nanostructured materials by CVD and ALD processes for application in energy and sensing devices

University

10/2016 - 10/2019

### RTD-B Researcher

Politecnico di Torino, DISAT department, Torino, Italy

- Teaching: regular teacher of General Physics 1
- Research: thin film and nanostructured materials by CVD and ALD processes for application in neuromorphic memristors and resistive switching devices

University

01/2015 - 10/2016

### Post Doc Researcher

Politecnico di Torino, DISAT department, Torino, Italy

- Teaching: assistant teacher of Materials for MEMS
- Research: thin film and nanostructured materials by CVD and ALD processes for application in neuromorphic memristors and resistive switching devices, and processing of devices by microfabrication technology and inkjet printing

University

01/2011 - 12/2014

### Senior Post-Doc Researcher

Istituto Italiano di Tecnologia (IIT), CSHR, Torino, Italy

- Research: Study of advanced materials and devices for neuromorphic engineering and alternative energy sources for space human robotics applications, by developing micro and nanostructured materials using CVD, ALD, and processing of devices by inkjet printing technology
- Research: Development and processing of graphene-based materials for application in printable inks, supercapacitor electrodes and the development of advanced devices using micro and nanotechnologies

Research Institute

09/2007 - 12/2010

### Post Doctoral Research Associate (PDRA)

Heriot-Watt University, School of Engineering and Physical Sciences, Edinburgh, Scotland, UK

- Research: Development of nanocrystalline diamond based materials by hot-wire and plasma CVD, and application as plasma-facing materials for nuclear fusion tokamak reactors, in collaboration with UK Atomic Energy Authority
- Research: Study of nanomaterials for up-conversion of sub-band-gap photons to increase solar cell efficiencies
- Teaching: assistant instructor of general physics and optics laboratory

University

02/2005 – 10/2006

### Post Doc Researcher

Politecnico di Torino, Physics department, Torino, Italy

- Teaching: assistant teacher of general physics
- Research: Study of carbon nanotubes by thermal-CVD and processing/application

University

## EDUCATION AND TRAINING

01/2002 - 03/2005

### PhD in Physics

Politecnico di Torino, Physics department, Torino, Italy

- Research: Process development for the fabrication of SiC power electronics devices; implementation of industrial processes, use of clean-room equipment (photo-lithography, electron-beam and thermal evaporation systems, etching techniques); study of sublimation growth process and non-intentional doping, surface analysis, electrical properties and defects characterisation of silicon carbide

09/1996 - 07/2001

### MSc in Materials Science

University of Torino, Torino, Italy

## WORK ACTIVITIES

**Main projects**

Leader of industrial research project with Nova Res s.r.l.: "Studio di una ottimale adesione del materiale metallico a quello polimerico" funded by POR FESR 2014/2020 - Asse I - Azione 1.1b.1.2 - Poli di innovazione Linea A tematica Smart Products and Manufacturing, within "ECOAT" project, 06/2018 – 12/2018.

Subcontractor of research projects:1) NANOMAX, funded by MIUR; 2) PIQUET (Piemonte Quantum Enabling Technology), funded by POR FESR 2014-2020 INFRA-P; 3) 3DSP (3D Smart Polymers), funded by POR FESR 2014-2020 Regione Piemonte; 4) DEFLECT (Digital Technology for Lung Cancer Treatment), funded by POR FESR 2014-2020 bando Piattaforma Tecnologica Salute e Benessere; 5) FOOD DRUG FREE (Sviluppo per la piattaforma miniaturizzata portatile per l'identificazione di farmaci nei prodotti alimentari), funded by POR FESR 2014-2020 bando Piattaforma Tecnologica Bioeconomia.

**Tutoring activities** Co-supervision of PhD and MSc student's research activities at Politecnico di Torino, IIT, Heriot-Watt University.

**Invited presentations** Oral presentation at Nanoforum 2014, Roma, Italy (22-24 September 2014).

**Grants** RTD-B grant, funded by Politecnico di Torino, 10/2016 – 12/2021;
RBA19 grant, funded by Politecnico di Torino, 10/2019 – 12/2022;
RBA20 grant, funded by Politecnico di Torino, 01/2020 – 12/2022;
"Marie Curie" Intra-European Scholarship grant for 1 year visiting PhD studentship, Linköping University (Sweden), 02/2004 – 01/2005.

**Patents** Italian patent n. IT0001418723, deposited 07/04/2013, published 05/01/2015;
International patent n. WO2015001534 A1, PCT filed 04/07/2014, published 08/01/2015; Italian patent n. IT102015000065421, deposited 26/10/2015, published 26/04/2017;
International Patent n. WO2016067243 A1, PCT filed 29/10/2015, published 06/05/2016;
International Patent n. WO2017093906 A1, PCT filed 30/11/2016, published 08/06/2017;
United States Patent Application, Publication n. US20200277088 A1, PCT filed 30/11/2016, published 03/09/2020.

## ADDITIONAL INFORMATION

**Publications** Total number of publications in peer-review journals: 74 (Scopus)
Total number of citations: 1748 (Scopus)
H index (Scopus): 25
Riviste in classe A e pubblicazioni:

Insert **relevant** publications (5-10 publications)

1) "TEM Nanostructural Investigation of Ag-Conductive Filaments in Polycrystalline ZnO-Based Resistive Switching Devices", Bejtka, K., Milano, G., Ricciardi, C., Pirri, C.F., Porro, S., ACS Applied Materials and Interfaces, 2020, 12(26), pp. 29451–29460.
2) "Tuning ZnO Nanowire Dissolution by Electron Beam Modification of Surface Wetting Properties", Milano, G., D'Ortenzi, L., Bejtka, K., ...Ricciardi, C., Porro, S., Journal of Physical Chemistry C, 2018, 122 (14), pp. 8011–8021.
3) "A multi-level memristor based on atomic layer deposition of iron oxide", Porro, S., Bejtka, K., Jasmin, A., Fontana, M., Milano, G., Chiolerio, A., Pirri, C.F., Ricciardi, C., Nanotechnology, 2018, 29 (495), 495201.
4) "Multiple resistive switching in core-shell ZnO nanowires exhibiting tunable surface states", Porro, S., Risplendi, F., Cicero, G., ...Pirri, C.F., Ricciardi, C., Journal of Materials Chemistry C, 2017, 5(40), pp. 10517–10523.
5) "Low-temperature atomic layer deposition of TiO2thin layers for the processing of memristive devices", Porro, S., Jasmin, A., Bejtka, K., Conti, D., Perrone, D., Guastella, S., Pirri, C.F., Chiolerio, A., Ricciardi, C., J. Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2016, 34 (11), 01A147.
6) "Memristive devices based on graphene oxide", Porro, S., Accornero, E., Pirri, C.F., Ricciardi, C., Carbon, 2015, 85, pp. 383–396.
7) "Memristive behaviour in inkjet printed graphene oxide thin layers", Porro S., Ricciardi C., RSC Advances, 2015, 5 (84), 68565 – 685704.
8) "Inkjet printed negative supercapacitors: Synthesis of polyaniline-based inks, doping agent effect, and advanced electronic devices applications", Chiolerio, A., Bocchini, S., Porro, S., Advanced Functional Materials, 2014, 24(22), pp. 3375–3383.
9) "A powerful tool for graphene functionalization: Benzophenone mediated UV-grafting", Roppolo, I., Chiappone, A., Bejtka, K., Celasco, E., Chiodoni, A., Giorgis, F., Sangermano, M., Porro, S., Carbon, 2014, 77, 226 – 235.
10) "Synthesis of polyaniline-based inks, doping thereof and test device printing towards electronic applications", Bocchini, S., Chiolerio, A., Porro, S., Accardo D., Garino N., Bejtka K., Perrone D., Pirri C.F., Journal of Materials Chemistry C, 2013, 1 (33), 5101 – 51097.