

## • PERSONAL INFORMATION

Family name, First name: Poccia, Nicola  
Nationality: Italian  
Researcher unique identifier: ORCID: [orcid.org/0000-0001-7982-0113](https://orcid.org/0000-0001-7982-0113)  
SCHOLAR: Nicola Poccia  
Date of birth: 27/07/1984  
URL: <https://sites.google.com/site/nicolapocciahomepage/>

## • EDUCATION

Sept 2003 - July 2008 M.Sc. Physics (*cum laude*).  
University "Sapienza" of Rome, Italy.  
Sept 2008 - Dec 2011 Ph. D. Material Science (*cum laude*).  
University "Sapienza" of Rome, Italy.  
Supervisor: Prof. Antonio Bianconi. Thesis: *Hard x-ray spatiotemporal techniques for the control of complexity in cuprate high-temperature superconductors*.

## • CURRENT POSITION

Nov 2013 - currently Marie Curie Fellow, University of Twente, The Netherlands.

## • PREVIOUS POSITIONS

Dec 2011 - Okt 2012 Visiting scientist, European Synchrotron Radiation Facility,  
Grenoble, France  
Nov 2012 - Nov 2013 Postdoc, University of Twente, The Netherlands.

## • MAJOR INTERNATIONAL COLLABORATIONS

I have independently initiated and established international collaborations with: Prof. Hans Hilgenkamp - Prof. Alexander A. Golubov - Prof. Alexander Brinkman (University of Twente), Dr. Valerii M. Vinokur (Argonne National Laboratory), Prof. Tatyana I. Baturina (Russian Academy of Science), Prof. Ginestra Bianconi (University Queen Mary of London), Dr. Tom Hawkins (European University College of London), Dr. Manfred Burghammer (Synchrotron in Grenoble "ESRF"), Dr. Michael Sprung (Hamburg "Petra III").

## • MAJOR NATIONAL COLLABORATIONS

I have established Italian collaborations with: Dr. Augusto Marcelli (Istituto Nazionale di Fisica della Materia, Dr. Gaetano Campi (Consiglio Nazionale delle Ricerche), Prof. Naurang Saini (Universita' La Sapienza di Roma), Prof. Marco Grilli (Universita' La Sapienza di Roma), Dr. Bobby Joseph - Dr. Luisa Barba - Dr. Gianmichele Arrighetti - Dr. Giorgio Bias - Dr. Maurizio Polentarutti (the Synchrotron Radiation Facility of Trieste: ELETTRA), Dr. Francesco Giazotto (Scuola Normale Superiore di Pisa).

## • ORGANISATION OF SCIENTIFIC MEETINGS

I have been (co-) organizer of the following conferences and workshops:

- International Conference on FeAs High  $T_c$  Superconducting Multilayers and Related Phenomena" Rome, December 9-13-2008.
- Symposium on quantum physics of living matter, Rome, July 11-13 2011.

- International conference on quantum phenomena in complex matter, Stripes11, Rome, July 11-16 2011.
- International conference on quantum phenomena in complex matter, Superstripes 2012, Erice, Italy, July 11-17 2012.

## • FELLOWSHIPS AND AWARDS

- Fellowship for further training abroad of the University La Sapienza of Rome, (2012, personal scholarship award, 20 K€).
- Marie Curie Intra-European Fellowship for Career Development (personal scholarship award 200 K€, project FP7-PEOPLE-2012-IEF-327711-IMAX).

## • SUPERVISION OF GRADUATE STUDENTS

- Martijn Lankhorst, MSc. His master thesis on interfaces and correlated electrons (2014) has been awarded the “Twente Graduate School” fellowship (which is given to only six students every year).

Both my M.Sc. (*cum laude*) and Ph.D. (*cum laude*) were obtained from the University of “Sapienza” in Rome, Italy with a subsequent important stay at the European Synchrotron Radiation Facility (ESRF) in France (11 months). During my postdoc at the University of Twente in the Netherlands, my international scientific recognition allowed me to receive the prestigious personal *Marie Curie Intra-European Fellowship* (IEF) grant (top 8% of Postdoc peers) to continue my work in the control of defects in superconductors. The independence obtained by this fellowship also allowed me to develop a new field of research, inspired by the combined expertise of synchrotron radiation techniques and the knowledge of defects functionalities in high temperature superconductors. In addition, it has allowed me to interact actively with a leading industry in the field of laboratory X-ray sources (as shown by one of my recent independent publications). Apart from the functional role of defects in superconductors, my interests include far from equilibrium phenomena and quantum aspects of living matter, both topics that clearly demand interdisciplinary efforts. I also have an active role in the organization of meetings and conferences in these areas, collecting contributions from several top-scientists in the field.

## **Publications.**

I have (co-)authored 43 publications in international, peer-reviewed journals. The articles have received more than 500 citations (excl. self-citations) so far, and the h-index is 16 (reference : web of Science, Thomson Reuters). The impact factor of the journals in which I have published range up to 42.

## ***Invited presentations***

- Colloquia of the Physics Section, Geneva, Switzerland, 1-11/11/ 2011.
- Superconduttività ed Applicazioni, Camerino, Italy, 12/4/2011.
- Vortex matter in nanostructured superconductors, Vortex VIII, Rhodes, Greece, 21-26/11/2013.
- Quantum in complex matter, Superstripes 2014, Erice, Italy, 25-31/11/2014.
- Fundamenteel Onderzoek der Materie, Veldhoven, the Netherlands, 20-21/11/2015

- Paul Scherrer Institute, Villigen, Switzerland 21/1/2015

### **Awards**

- Cum Laude award, Master diploma 2008, Cum Laude award, PhD diploma 2011.
- Fellowship for further training abroad of the University La Sapienza of Rome, (2012, personal scholarship award, 20 K€).
- Marie Curie Intra-European Fellowship for Career Development (personal scholarship award 200 K€, project FP7-PEOPLE-2012-IEF-327711-IMAX).

### **Recognition**

My expertise is recognized in the imaging and control of defects in superconductors as evidenced by my set of works published in Nature, in Nature Materials and in PNAS and by the – news and views – made by eminent scientists:

- Jan Zaanen, Aug. 2010. High-temperature superconductivity: The benefit of fractal dirt. Nature 466 (7308), 825-827.
- Peter B. Littlewood, Sep. 2011. Superconductivity: An x-ray oxygen regulator. Nature Materials 10 (10), 726-727.

My expertise has been further recognized in well-known international and national news magazines:

- Science News: “Superconductors go fractals, by Laura Sanders, 2010.
- Wired Science: “Inexplicable Superconductor Fractals Hint at Higher Universal Laws” by Brandon Keim, 2010.
- New Scientist: “Fractals promise higher-temperature superconductors” by Anil Ananthaswamy, 2010.
- Physics World: “Fractals boost superconductivity” and “X-rays control disorder in superconductor” by Edwin Carlidge, 2010 and 2011.
- Science daily: “Sketching with superconductors: Breakthrough in controlling defects could lead to new generation of electronic devices”, 2011.
- ANSA.it: “Raggi x come penne per disegnare superconduttori”, 2011.
- Altro Giornale.org: “I frattali promettono superconduttori a temperature superiori” and “I raggi X disegnano I nuovi superconduttori”, 2010 and 2011.
- Le Scienze Web News: “I raggi X disegnano nuovi superconduttori”, 2011.
- Galileo: “La struttura frattale dei superconduttori” by Anna Lisa Bonfranceschi, 2010. and “Scienza made in Italy (or by Italians)” by Caterina Visco, 2011.