Giancarlo Ruocco

Short CV

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Personal

Born in Rome, Italy, November 7th, 1959.
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Work

CLN^{2}S (Center for Life Nano- and Neuro-Science)
IIT (Istituto Italiano di Tecnologia)
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and

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Member of the Academy of Science of Ukraine
Member of the Academia Europaea

Academic Career

2011-	Coordinator, PI and Senior Scientist, Center for Life NanoScience (CLNS) of the Italian Institute of Technology (IIT)
2000-	Full Professor in Condensed Matter Physics (SSD/SC FIS03/02B1) at Physics Department, Sapienza University of Rome.
1992-2000	Associate Professor in Condensed Matter Physics (SSD/SC FIS03/02B1) at Physics Department, L'Aquila University.
1984-1992	Assistant Professor in Condensed Matter Physics (SSD/SC FIS03/02B1) at Physics Department, L'Aquila University.
1981	Laurea degree in Physics, *summa cum laude,* Sapienza University of Rome.

Research Activities

The research activity of Giancarlo Ruocco has been initially devoted to the study of the dynamics of disordered matter (liquid, supercooled liquids, glasses, gels, colloids, soft matter, biological matter...). The techniques and methodology used are experimental, numerical (mostly molecular simulation) and theoretical. On the experimental side he developed and implemented different spectroscopic instrumentations, specifically for Brillouin scattering, Raman scattering, Inelastic x-ray scattering, Impulse stimulated scattering, photon correlation spectroscopy, non-linear optics, ...

For a detailed description of Giancarlo Ruocco's activities in the period 1990-2015 see: 10.5488/CMP.22.40101 (*Giancarlo Ruocco: from inelastic X-ray scattering to neuroscience*, Condensed Matter Physics, 2019, Vol. 22, No 4, 40101: 1–5)

The scientific problems investigated after 2015 are mainly related to the mission of the CLN^2S-IIT: neurosciences and neurodegenerative disease. He studied both numerically and experimentally the neural network dynamics in neurons culture and in live micro organisms (C. Elegans). He is responsible for the technical development of a long working distance microscope for the detection of small aggregates of protein (beta-Amyloid, Tau) in the human retina, aiming to the early detection of Alzheimer Disease. He is also responsible for the development of newly conceived methods for high throughput Brillouin microscopy, a technique that have been already applied to study the biomechanics of stress-granules in iPSC motoneurons from ALS patients and to clarify the role of the MLL4 protein in Kabuki syndrome.

He has been invited speakers at about 50 international conferences and he is co-author of more than 480 publications on international referred journals (among them about 70 publications are on Physical Review Letters, about 75 on Physical Review A/B/E, and 25+ on high impact journals as Science, Nature, Review of Modern Physics, PNAS, Nature family). He is author of three filed patents.

He has been and is Principal Investigator in different International and National projects. At present, he is recipient of:

- **ERC synergy grant**, named ASTRA (ASsembly and phase Transitions of Ribonucleoprotein Aggregates in neurons: from physiology to pathology). The project, funded for approx 9 MEuro in the 2020-2026 period

- **EIC Pathfinder Open** project, named *in vivo* Brillouin Microscopy for protein aggregation based pathologies (ivBM4PAP). Approx. 3.5 MEuro, 2023-2026

He is Referee for major journals, as Science, Nature, Nature Materials, Physical Review Letters, Physical Review E/B, Europhysics Letters, Journal of Chemical Physics and many others.

Since 2021 he is **member** elected of the ***National Academy of Sciences of Ukraine***.
Since 2022 he is **member** elected of the ***Academia Europaea*.**

The main bibliometric indicators of Giancarlo Ruocco are:

Number of Publications	480+
Total Publications IF	2800+
Total number of citations *(Scopus, Scholar)*	15000+, 20000+
H-*index (Scopus, Scholar)*	65, 75

Experience in the coordination of the research activities

Since 2000 he is leader of the "GLAS" (**Liquids and Amorphous Solid Group**) at the Department of Physics, "Sapienza" University of Rome. The group is constituted by six staff researchers and different PostDocs, PhD students and undergraduate students. Three of the senior researchers of the group won an ERC starting grant, and are now associate professors at Sapienza University of Rome, one of them recently also won an advanced ERC grant.

In 2004, **he founded the Research Center "SOFT"** of the INFM. Since then (Apr 2004) to Dec 2008 he has been the director of "SOFT". The center was devoted to the study of the microscopic dynamics in soft matter and disordered materials. The research center coordinated the activity of about 50 university scientists and employed a staff of about 25 researchers. After the restructuring of the INFM-CNR, the research center "SOFT" became part of the CNR institute named "Istituto per I Processi Chimici-Fisici" (IPCF).

From Nov 2007 to Jan 2013 he has been the **Director of the Physics Department** at "Sapienza" University of Rome. The Department counts about 150 staff professors and about 350 non staff researchers (from PhD students to researchers of other institutions operating at the Physics Department).

From 2010 to 2014 he has been the **Vice Rector, delegate to the Research Policy,** at the Sapienza University of Rome. In this period he coordinates the different activities aiming to provide financial and human resources to different Departments (about 60) and staff scientists (about 4000). In this period he also acquired competence in the evaluation of the research products.

In the period 2009-2010 he has been co-proponent, from 2011 external collaborator and **coordinator of the Center for Life Nano Science (CLNS)** and from 2015 IIT scientists and coordinator of CLNS. The latter is a laboratory of the Italian Institute of Technology (IIT), established in Rome, in close contact with the Sapienza University. The center has been funded for the first 5 (2011-2015) years (20 MEuro), re-funded for 5 more years (2016-2020, 20 MEuro), and then refunded for the 2021-2025 period (approx. 20 Meuro). The mission of the center has been the study of two specific pathologies (ALS and Brain Cancer) with an interdisciplinary (better say "Convergent") effort. The almost 50 researchers and 30 PhD student of the center are from different disciplines: Biochemistry, Biology, Chemistry, Engineering, Medicine, Physics and they work together, each one bringing her/his own experience and tools, learning a common language to conduct research in a integrate fashion. Recently, the core business of the CLNS evolved towards more biotechnical activities, aiming to develop technologies of biomedical interest, all of them related to neuroscience. At present CLNS counts 7 research lines (7 PIs), it counts 50 PostDocs and 30 PhD students. All the PIs are ERC recipient, and the external to internal budget is close to 70%.

Since 2018 Giancarlo Ruocco is the **scientific director of the IIT – CrestOptics** (a high tech enterprise focused on the production of imaging instrumentation) **joint laboratory**. This joint lab aims to develop new microscopies. The company financed the joint lab with approx. 5 MEuro in the period 2018-2021. Different patents (10+) have been filed by the joint lab, and a spin-off is ready to go.

Giancarlo Ruocco served and serves in different committees of the University of Rome "La Sapienza", the Istituto Nazionale per la Fisica della Materia (INFM, then INFM-CNR), the European Synchrotron Radiation Facility (member of the Scientific Advisor Committee from 1999 to 2007, member and head of the Italian delegation of the Council), the "Laboratorio Europeo Spettroscopie non Lineari", LENS (former member of the Directive Council), and the European Community (former member of the ESFRI panel on "Soft X-ray Free Electron Lasers", referee for FP7 and ERC projects).

Other duties have been:

- Member of the ESRF (European Synchrotron Radiation Facility) SAC
- Member of the Large Academic "Senato", Sapienza University (2001-2003).
- Member of the Directive Council of LENS (2001-2004).
- Member of the INFM Synchrotron Light committee (2001-2006).
- Member of the ESRF (European Synchrotron Radiation Facility) PAC, the Director Council (2007 - 2014).
- Member of the committee for the "Innovation of Research Policy" , Sapienza University (2007-2014).
- Head of the ESRF (European Synchrotron Radiation Facility) PAC Italian delegation, (2009 - 2013).

- Member of the executive committee of the Department Directors, Sapienza University (2009-2010).
- Sapienza delegate at the Italian Space Agency (2012-2014).
- Minister of Research delegate for the restructuring of the INFN (2010/2011).
- Member of the Physics PhD program committee (2018-present)
- Fellow of the SSAS (Scuola Superiore Studi Avanzati Sapienza) (2016-present)
- Member of the Elettra SAC, the Scientific Council (2022-present).

Experience in the evaluation of the research activities

- Member of the Beam Time Review Panel of ESRF (European Synchrotron Radiatio facility) (2003 - 2005).
- Italian representative at ESFRI, Roadmap Soft X-ray & Free Electron Laser (2004 - 2007).
- President of the Beam Time Review Panel of ESRF (European Synchrotron Radiation facility) (2006 - 2007).
- Member of the Beam Time Review Panel of LCLS (2010 - 2014).
- Member of different Beam Line Review Panels at ESRF, LCLS, XFEL and Elettra.
- Member of the Academic Board of Elsevier (2012 - 2014).
- Coordinator of the working group CRUI-Ricerca (2013 - 2014).
- Member of the Evaluation Body of Humanitas University (2015-2021 & 2023-).
- Reviewer of national (PRIN, FIRB, SIR) and international (ERC,FP7,H2020) projects.
- Member of the Sapienza' committee for Patents and Spin off.
- Member of the selection committee for the Tomassoni-Chisesi prize (Sapienza).

Teaching and mentoring activity

He has been supervisor of about 30 PhD students and about 50 master thesis students. Among his students, five are full professor in Italian University, three are Associate professors, many of them are Researchers and first Researchers at CNR, CNRS, ESRF, Elettra, IIT and other institutions. Among his students, five are or have been recipient of an ERC grant.

Rome, January 20th, 2024