



## **SHORT CURRICULUM (ENGLISH)**

Degree in Physics (Laurea, summa cum laude) from the University of Perugia (1987).  
Dottorato di Ricerca (Ph.D.) in Condensed Matter Physics at the University of L'Aquila (1989-1992).

Positions:

- 1992 to 2000: researcher (assistant professor) of Experimental Physics of Matter at University of Perugia.
- 2000 to 2024: associate professor of Experimental Physics of Matter at University of Perugia.
- 2024 to present: full professor of Experimental Physics of Matter at University of Perugia
- Since 1995 he is scientific manager of the research line F2 of the INFM-Unit of Perugia, concerning the study of spin waves in low-dimensional systems.
- Since 2006 he is Local Coordinator of the Perugia Unit of the Consorzio Interuniversitario di Scienze Fisiche della Materia (CNISM). He is also associated to the CNR- Istituto Officina dei Materiali (IOM-CNR), while until 2021 he was associated to the Istituto di Nanoscienze, S3 research center at Dept of Physics of Modena.
- In 2013 he has got the national scientific qualification to be hired as full professor of Condensed Matter Physics (renewed in 2020 and valid until 2029).
- Between 2014 and 2017 he has been Italian member of the Magnetism Commission (C9) of the IUPAP (International Union of Pure and Applied Physics).
- In June 2016 he has been visiting professor at Université Pierre et Marie Curie - Sorbonne in Paris.
- Between 2017 and 2021 he has been member of the Board (previously 2015-2017 Vice-President) of the National Association of Magnetism (AiMagn)
- Between 2017 and 2022 he has been coordinator of the PhD Course in Science and Technology for Physics and Geology of Perugia University.
- Between 2020 and 2022 he has been deputy director for research and for VQR procedure of the Dept. of Physics and Geology, Univ. of Perugia.
- Since 2022 he is responsible of the WorkPackage "Education, Dissemination and Technology Transfer" of the Spokes 9 and 10 of the PNRR Innovation Ecosystem VITALITY, funded by PNRR (Next Generation EU) and expected to last until 2026.
- Since 2024 he is his delegate for the quality assessment of the Department of Physics and Geology at Perugia University.

He has been supervisor of about thirty bachelor or master students who defended their thesis in Physics or in Electronic Engineering, as well as of eight PhD students in Physics. Moreover, he has been responsible of more than fifteen post-doc or fixed-term researchers.

Author of more than 240 publications on international journals about Condensed Matter Physics, with referee procedure, and over 100 presentations, some of them uninvited, at national and international conferences.

Total citation till Nov. 2024: 5800 on ISI-WOS (8200 on Google Scholar), h-index: 44 on ISI-WOS, (49 on Google Scholar).

In the last years he has collaborated as an external evaluator for national and international funding agencies, such as MIUR (Italy), ERC (European Commission), ANR (France), DFG (Germany) and FWF (Austria).

He has been national scientific coordinator of the project PRIN-2007 about magnonic crystals (2007-2009), in collaboration with groups from CNR-IFN (Rome) and Ferrara University. Previously, he was also national coordinator of the project PRIN-2003 about magnetic nanostructures modelled by focused ion beam (2003-2005), in collaborations with groups from University of Modena, Firenze and Ferrara.

In 2016-17 he has been the responsible of a sponsored research agreement funded by the multinational enterprise QORVO (2016-2017), aimed to the study of acoustic resonators based on bulk acoustic waves.

He has been scientific responsible of the research unit of Perugia, participating to the following national research projects:

- Progetto di Ricerca Avanzata SIMBRIS-INFN about spin waves in magnetic films and multilayers (1998-2000), in collaboration with University of Ferrara, Camerino and Istituto MASPEC-CNR of Parma).
- Progetto integrato CNR about the study of magnetic anisotropy in ultrathin films (1998-1999), in collaboration with IEQ-CNR of Firenze.
- European project STREAM, on the study of the effect of stress in microelectronics systems (1999-2002), in collaboration with ST Microelectronics and other six european partners.
- Project MURST-COFIN2000 about surface magnetisms (2001-2002), in collaboration with TASC-INFN-Trieste, Univ. of Ferrara e Camerino.
- European project "Landauer" (2012-2015), in collaboration with other four european groups.
- PRIN 2011 Project "DyNaNoMag" (2013-2015), in collaboration with other four italian groups (Univ. Napoli "Federico II", Politecnico di Torino, Univ. Messina, INRIM)
- International research project FUN-TOPS (2018-2021), in collaboration with other six european research groups, relative to topological materials, funded by the association of european metrological institutes (Euramet).

He has been involved as participant in a Progetto di Innesco of CNISM (2007-2010) aimed to the construction of a micro-Brillouin apparatus and in the European project "Magnonics" (2009-2012), in collaboration with other six groups from four european countries.

Presently (2022-2024), he is responsible of the research unit of Perugia participating to the PRIN-2020 project "IT-SPIN, Italian factory for micromagnetic modelling and spintronics" (2022-2025), in collaboration with other four italian research units (Uni-Messina, Uni-Cosenza, Poli-Bari and INRIM-Torino).

Moreover, through a non-profit organization, from 2019 to 2022 he has been Coordinator of a three-years education program devoted to children of age 6 - 14, involving associations, schools, University and Science Museum of Perugia, named "Relazioni ed Eccellenze Educative sul Territorio" (RETE!), supported by "Con i Bambini Impresa Sociale" in the framework of the national fund to contrast child-education poverty.

Presently (2023-2025) he is coordinator of a further three-years education program to contrast child-education poverty for children of age 6-15 years involving a dozen of institutions, including UniPG, primary and secondary schools and six different municipalities in Umbria. The title of this further project is "Polo TeRritoriale di Eccellenza Educativa (p-TREE)".

Main research interests since 1987:

Surface and interface phonons in solids. Inelastic Brillouin scattering from surface phonons in solids. Elastic and vibrational properties of multilayers and superlattices, both metallic and semiconductors.

Design and managing of ultra-high vacuum systems for the epitaxial growth of materials.

Magnetic properties of thin films and multilayers. Spin waves and Brillouin scattering.

Production of nanostructured materials by e-beam lithography, x-ray lithography and focused ion beam. Investigation of structural properties by techniques based on the use of photons and electrons. Magnonic crystals. Spintronics. Topological magnetic materials. Skyrmions, Micromagnetism.

#### **LIST OF PUBLICATIONS:**

<http://ghost.fisica.unipg.it/carlotti/publications.htm>

[https://scholar.google.it/citations?hl=it&user=xZ1qV4MAAAAJ&view\\_op=list\\_works&sortby=pupdate](https://scholar.google.it/citations?hl=it&user=xZ1qV4MAAAAJ&view_op=list_works&sortby=pupdate)