

CURRICULUM VITAE

Gabriella Cipparrone

Professor of Physics of Matter

Physics Department, University of Calabria, Rende(CS), Italy

Qualifications

(1986-89) Research Doctorate (PhD), Physics, University of Messina, Italy

(1984) Laurea (Master's degree), Physics, University of Calabria, Italy

Academic positions

1991-2001 University Researcher on Physics, Faculty of Sciences, and Physics Department, University of Calabria.

2001- 2017 Associate Professor of Physics of Matter, Faculty of Sciences, and Physics Department, University of Calabria.

2017-today full professor of Physics of Matter, Physics Department, University of Calabria.

Research and Academic leadership

- Vicepresident of the “Corso di Laurea e di Laurea Specialistica in Fisica” (2008-2012).
- Coordinator of the “Corso di Laurea in Scienza dei Materiali” Univ. of Calabria, 2017-2019.
- Coordinator of the Doctorate “Scienze e Tecnologie Fisiche, Chimiche e dei Materiali” since 2019.
- Member of the Doctorate Board of “Physics” up to 2007, Univ. of Calabria; of "Doctorate School of Science and Technique - B. Telesio", curriculum "Mesophases and Molecular Materials", Univ. of Calabria, 2007-2013; and Member of the "Consiglio Direttivo" of the Doctorate "Scienze e Tecnologie Fisiche, Chimiche e dei Materiali", University of Calabria, since 2013.
- Chair of the COST (european COoperation Scientific and Technological) Action MP1205: Advances in optofluidics: integration of optical control and photonics with microfluidics.(10/2012-10/2016) 4 years.
- Chair of the Project of Great Relevance: Italy-Mexico 2011 - 2013: Strategies of optical manipulation in soft matter by optical tweezers with polarization gradient (funded by MAE (Italian Foreign Ministry).(01/01/2011-31/12/2013) 3 years.

- Coordinator of a research unit: BRITE EuRam III Thematic Network BRRT-CT97-5019 "Liquid Crystals based Photonic Devices", LC-Photonet. 11/1997-10/2000, 3 years.
- Management Committee member: COST 2002: Azione COST (european COoperation Scientific and Technological) P8: Materials and Systems for Optical Data Storage and Processing. (2002-2006), 4 years.
- Coordinator of research units of several national projects (PRIN, PON).

Participation to high quality organizations and research institutes.

- National Research Council, Institute of Nanotechnology (CNR-Nanotec).
- Center of Excellence of Italian Ministry of Education, Universities and Research for the Innovative Functional Materials (MIUR-CEMIF.CAL)

Achievements in technology transfer

- "StartCup Calabria 2009 - Business Plan Competition", awarded with the best technology-based business plan (Oct. 27th, 2009).
- National Award for Innovation PNI, Perugia, Italy (Dec. 4th, 2009)
- Several patents, some of the most recent ones:

International Patent (WO/2008/142723) "Method and device for measuring circular dichroism in real time". Inventors: G. Cipparrone, P. Pagliusi, C. Provenzano, A. Mazzulla. Applicant: University of Calabria. International filling date: May 19th, 2008.

Italian Patent (0001385715) "Metodo e dispositivo per la misura in tempo reale di dicroismo circolare". Inventors: G. Cipparrone, P. Pagliusi, C. Provenzano, A. Mazzulla. Applicant: University of Calabria. Filling date: May 18th, 2007.

Italian Patent (CS2011A000003) "Metodo per la misura di proprietà chiro-ottiche in tempo reale basato su un reticolo di polarizzazione". Inventors: G. Cipparrone, P. Pagliusi, C. Provenzano. Applicant: University of Calabria. Filling date: Jan 27th, 2011.

Teaching and supervision activities of graduate students and postdoctoral positions

Lectures of the following courses: *Electromagnetic waves and Optics*, *Molecular photonics*, *Optics of Liquid crystals*, *Statistical mechanics*, *Soft matter*, Laurea (BSc) in Materials Science and Physics, *General Physics*, Laurea (BSc) Biology, Geology, Computer science, Chemistry. Supervision of 7 Postdocs, and 8 PhD students of the Doctoral schools in "Physics" and "Science and Technology of the mesophases and the molecular materials" and "Scienze e Tecnologie Fisiche, Chimiche e dei Materiali" several graduate students.

Other organization activities.

Member of the Advisory Board of the "International topical Meeting on Optics of Liquid Crystals" from 2001 to 2011.

Member of the Scientific Committee of the 26th International Liquid Crystals Conference.

Member of the Organizing committee of International conference and Mediterranean workshop "NOMA"(Novel Optical Materials and Applications).

Member of the scientific and organizing committee of several meetings and training schools in the frame of the Cost Action MP1205 "Advances in optofluidics: integration of optical control and photonics with microfluidics".

Topical Editor of Optics Letters.

Reviewer for several scientific journals (OSA, AIP, APS, Wiley, Nature group).

Editorial board of "Optofluidics, Microfluidics and Nanofluidics", De Gruyter.

Editorial board some issues "Molecular Crystals Liquid Crystals".

Responsible of research lines of the Center of Excellence of Italian Ministry of Education, Universities and Research for the Innovative Functional Materials (MIUR-CEMIF.CAL).

Scientific collaboration

Past and present

- prof. I.C.Khoo of the Institute of Electrical and Electronics Engineers of the Pennsylvania State University, USA. Topic: nonlinear optics in liquid crystals.

- Dr. Nelson V. Tabiryan, Institute of Applied Problems in Physics, Armenian Academy of Sciences, Yerevan, Armenia. Topic: optically induced orientation in liquid crystals.

- prof. Francesco Simoni, Dipartimento di Fisica e Ingegneria dei Materiali e del Territorio, dell'Università Politecnica delle Marche, Ancona. Topics: non linear optics of liquid crystals and composite materials PDLC (polymer dispersed liquid crystals) soft matter photonics

- prof. Lev Blinov ed il prof. Serguei P. Palto, Russian Academy of Science, AV Shubnikov Crystallography Institute, Moscow, Russia. Topic: organic microlaser.

- prof. Guram Chilaya, Institute of Cybernetics, Georgian Academy of Sciences Tbilisi, Georgia Topic: tunable microlaser based on chiral nematics.

- prof. Rainer Macdonald, Optisches Institut, Technische Universität Berlin, Berlin, Germania. Topic: surface photorefractivity.

- prof. Giovanni Barbero, Dipartimento di Fisica, Politecnico di Torino. Topic: electro-optical effects in liquid crystals

- dr. Loris Giorgini, Dipartimento di Chimica Industriale e dei Materiali, Università di Bologna. Topic: photoinduced effects in multifunctional polymers.

- prof. Valery Shibaev, Department of Chemistry, Moscow State University (Russia). Topic: azobenzene polymers for photonics applications and optical storage.; Novel photochromic polymers.

- prof. Ventseslav Sainov, Central Laboratory of Optical Storage and Processing of Information (CLOSPI), Bulgarian Academy of Science Sofia (Bulgaria). Topic: holography, holographic recording for cultural heritage applications (virtual museum)

- prof. Ludmila Nikolova, Central Laboratory of Optical Storage and Processing of Information (CLOSPI), Bulgarian Academy of Science Sofia (Bulgaria). Topic: Polarization holography.

- prof. Ruben Ramos-Garcia and dr. I. Ricardez-Vargas dell'Instituto Nacional de Astrofísica, Óptica y Electrónica, Puebla, Messico. Topic: Complex beams generation.
- prof. Karen Volke Sepulveda, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico. Topics: Optical manipulation.
- prof. Yuriy Reznikov, Institute of Physics, National Academy of Science of Ukraine, Kiev, Ukraine. Topics: Holographic gratings in liquid crystals, nanoparticles assembling.
- prof. Vladimir G. Chigrinov, Dept. of Electronic and Computer Engineering, Hong Kong University of Science and Technologies. Topics: photo alignment .
- dr. Ettore Castiglione JASCO Europe srl, and Department of Biomedical science and iotechnologies, University of Brescia, Italy. Topics: CD spectrometer based on a polarization grating.
- prof. Luiz Evangelista, Physics Department, Universidade Estadual de Maringá Maringá, Paraná, Brasile. Topics: formation of topological defects in liquid crystals cells with a periodic twisted structure.
- dr. Onofrio Maragò, IPCF, CNR, Mesina Italy. Topics: optical trapping of chiral microparticles.
- prof. Pavel Zemanek, Institute of Scientific Instruments, Academy of sciences of the Czech Republic, Brno, Repubblica Ceca. Topics: optical manipulations of liquid crystals droplets and polimeric particles.
- Prof. Cheng-Wei Qiu, Department of Electrical and Computer Engineering, National University of Singapore. Topics: Chiral optomechanics.
- prof. Vera Hamplova, Institute of physics Academy of sciences of the Czech Republic, Prague, Repubblica Ceca. Topics: Novel photochromic polymers.

Research activities

The main research activities are in the following fields:

- Optics and Nonlinear optics of liquid crystals.
- Nonlinear dynamics and chaos in liquid crystals.
- Photorefractivity in mesogens, polymers and composite materials.
- Photonics of amorphous and mesomorphic functional molecular materials
- Linear and nonlinear optical properties of organic photosensitive materials
- Vectorial optical holography
- Holograms for Cultural Heritage
- Photo-induced structural transformation and surface patterning in polymers and composite materials
- Structured light fields.
- Organic lasers
- Optical trapping and manipulation of liquid crystal microparticles and chiral microparticles.

Co-author of more than 150 publications on international scientific journal with referee and chapters of books, with more than 2500 citations (h index 29 Scopus and 29 ISI , 2019) and 5 patents; covers (Advanced Materials, Advanced Functional Materials).

More than 40 invited and oral presentations at national and international conferences in the last 10 years.