

Dr. Roberto Caputo

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Key qualifications

Habilitation	2017	Full Professor (Physics of Matter) (02/B1, Fisica Sperimentale della Materia), art. 18, comma 4, Legge n. 240/2010;	Ministry of Education, University and Research (MIUR)
Habilitation	2012	Associate Professor (Physics of Matter) (02/B1, Fisica Sperimentale della Materia), art. 18, comma 4, Legge n. 240/2010;	Ministry of Education, University and Research (MIUR)
Ph.D Physics	January 2005	Dissertation Title: "Detailed Experimental and Theoretical Characterization of POLICRYPS Diffraction Gratings"; Advisor: Prof. Cesare Umeton	Physics Department University of Calabria
M.Sc Physics	March 2000	Dissertation Title: "Study and Characterization of holographic diffraction gratings recorded in liquid crystalline composite materials by a UV interference pattern"; Advisor: Prof. Cesare Umeton	Physics Department University of Calabria

Current position

Since Oct. 2007	Assistant Professor (Ricercatore di ruolo) (02/B1, Fisica Sperimentale della Materia) Co-Director of the NANOLASE group	Physics Department University of Calabria
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Individual fellowships and visiting periods

Period	Role	Project	Place
Sep. 2014 – Aug. 2016	Professeur Invité	Stretchable Plasmonic Couplers for Sensing Applications (SPLASCOSA)	University of Technology of Troyes (France)
Mar.-Apr. 2014	Visiting researcher	COST action IC1208 "Integrating devices and materials: a challenge for new instrumentation in ICT"	Bilkent University, Ankara (Turkey)
Sep.-Oct. 2013	Visiting researcher	COST action IC1208 "Integrating devices and materials: a challenge for new instrumentation in ICT"	University of Technology of Troyes (France)
Jul. 2005 – June 2007	Marie-Curie Post-doc fellowship	Diffraction Structures for Colour Separation in Backlight Display Systems (GLOSS-EE; FP6-MOBILITY)	Philips Research Europe, Eindhoven (NL)
May 2000 – Nov. 2001	Post-graduate scholarship	Realization and Electro-optical Characterization of holographic gratings in liquid-crystalline composite materials with alternated slides structure of POLICRYPS type	Italian Institute for the Physics of Matter (INFM), University of Calabria

Awards and Prizes

Jun. 2006	Ph.D Thesis prize appointed by the Italian Society of Liquid Crystals (SICL)	Italian Conference of Liquid Crystals, Castiglioncello (Italy)
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Project Management

Period	Budget	Role	Project	Funding agency
Sep. 2014 – Aug. 2016	68k€	PI	Stretchable Plasmonic Couplers for Sensing Applications (SPLASCOSA)	Champagne-Ardenne region (France)
May 2012 – Apr. 2017	150k€/year	Vice-Chair	COST action “Integrating devices and materials: a challenge for new instrumentation in ICT” (N°ICI208)	European Cooperation in Science & Technology (COST)
Sep. 2009.- Aug. 2012	350k€	Research responsible	FP7-NMP “Self-Organized Nanomaterials for Tailored Optical and Electrical Properties - NANOGOLD” (N°228455)	University of Technology of Troyes (France)
Jul 2007 – Jun.. 2008	43k€	PI	FP6-ERG “Nanocavity Organic Laser Arrays Realized in Holographic Sculptured Polymeric Structures – NANOLAPS” (Contract N°46428)	European Commission – Marie Curie Actions
2006-2009	300k€	Research responsible	PRIN project, “Realization and characterization of high precision POLICRYPS periodic structures with applications to photonics and their utilization in prototypes of novel fiber optical sensor systems”	Ministero dell’Università e della Ricerca scientifica e tecnologica (MURST)
2003-2006	280k€	Research responsible	PRIN project, “Preparation and characterization of POLICRYPS gratings for fabrication of integrated electro-optical devices”	Ministero dell’Università e della Ricerca scientifica e tecnologica (MURST)
2002-2005	200k€	Research associate	PRA project, “Transverse localization and optical signal processing via spatial solitons in nematic liquid crystals”	Intituto Nazionale per la Fisica della Materia (INFM)
2000-2002	150k€	Research associate	PRIN project, “Devices for routing in optical networks using new liquid crystals materials and composites”	Ministero dell’Università e della Ricerca scientifica e tecnologica (MURST)
2000	150k€	Research associate	PAISS project, “Realization and characterization of diffraction gratings in liquid crystalline composite materials with an alternated slide structure”	Intituto Nazionale per la Fisica della Materia (INFM)
1996-2001	100k€	Research associate	FESR project, “Study of liquid crystalline composite materials for realization of programmable holographic devices for optical processing of information”	Intituto Nazionale per la Fisica della Materia (INFM)

Leadership and Administrative experience

2012 - 2016	Vice-Chair and Management Committee member of the COST action ICI208 “Integrating devices and materials: a challenge for new instrumentation in ICT”	European Cooperation in Science & Technology (COST)
2017 - today	Management Committee member of the COST action CAI6220 “European Network for High Performance Integrated Microwave Photonics”	European Cooperation in Science & Technology (COST)
2018 - today	Elected member of the directive committee of the Italian Society of Liquid Crystals (SICL)	Italian Society of Liquid Crystals (SICL)
2007- today	Member of the board of the Doctorate course in: “Scienze e Tecnologie Fisiche, Chimiche e dei Materiali”	University of Calabria
2007 - today	Coordinator of Erasmus agreements between University of Calabria and: Université de Technologie de Troyes (UTT), Military University of Technology Warsaw (MUT), Eindhoven University of Technology (TU/e);	University of Calabria

Academic teaching and advising experience

- o Developed and taught courses (bachelor, master and doctorate level) ranging from basic physics (mechanics, dynamics and thermodynamics), to electro-magnetism, optics, photonics and advanced courses in physics of matter and Spectroscopic Techniques;
- o Invited lecturer for short courses in case of summer schools or Erasmus mobility in France and Netherlands
- o Thesis advisor of more than **20 students** at bachelor and master level and **4 Ph.D** fellows (one ongoing), with several of them in co-tutelle with international partners;

Teaching Bachelor and Master courses

Period	Role	Course	Major	Place
10/2016 – today	Lecturer/ Lab assistant	Linear and non-linear spectroscopies	MSc Physics	Physics Department, University of Calabria
10/2016 – today	Lecturer/ Lab assistant	Physics of Innovative materials	BSc Materials Science	Physics Department, University of Calabria
10/2016 – today	Lecturer/ Lab assistant	Electromagnetic properties of matter	BSc Materials Science	Physics Department, University of Calabria
10/2007 – 07/2012	Lecturer/ Lab assistant	Introduction to the Physics of matter	BSc in Restauration Technology	Faculty of Sciences, University of Calabria
10/2001 – 09/2012	Lecturer/ Lab assistant	Introduction to the experimental method	BSc Physics	Faculty of Sciences, University of Calabria
10/2011 – 09/2012	Lecturer/ Lab assistant	Molecular photonics	BSc in Restauration Technology	Faculty of Sciences, University of Calabria
10/2009 – 09/2011	Lecturer/ Lab assistant	Elements of Electricity and Magnetism	BSc Geology	Faculty of Sciences, University of Calabria
10/2008 – 09/2009	Lecturer/ Lab assistant	Elements of Mechanics and Thermodynamics	BSc Geology	Faculty of Sciences, University of Calabria
10/2008 – 09/2009	Lecturer	Spectroscopic techniques	MSc Physics	Faculty of Sciences, University of Calabria
10/2003 – 09/2005	Lecturer/ Lab assistant	Project of Opto-Electronics	BSc Electrical Engineering	Faculty of Engineering, University of Calabria
10/2001 – 09/2005	Peer tutor	Peer tutoring for the first year courses of the faculty of Sciences	BSc (Physics, Chemistry, Biology, Mathematics)	Faculty of Engineering, University of Calabria

Teaching short courses

Period	Role	Course	Setting	Place
Apr. 2015	Lecturer	Plasmonics and Nanofabrication	“Vinci Project” Doctorate school, Universite-franco-italienne	Université de Technologie de Troyes (UTT)
Aug-Sep 2009	Lecturer	POLICRYPS diffraction gratings: Theory and Applications	LLP/Erasmus Mobility	Eindhoven University of Technology (TU/e)

Advising Ph.D programs

Period	Name	Project	Outcome	Place
Nov. 2017 – today	Giuseppe Emanuele Lio	Design and Realization of a Nano-guided plasmonic hybrid systems	1 published paper, 3 papers in preparation	Physics Department, University of Calabria
Nov. 2013 – Oct. 2016	Domenico Alj	Realization of liquid crystalline composite structures organized in non-cartesian orientations and their applications	3 published papers	Physics Department, University of Calabria
Nov. 2013 – Oct. 2016	Antonio Ferraro	From basic to advanced: design, fabrication and characterization of functional Terahertz devices	6 published papers	Physics Department, University of Calabria and CNR-IMM Rome
Nov. 2010 – Oct 2013	Ugo Cataldi	Active plasmonics in soft matter doped with gold nanoparticles	7 published papers	Physics Department, University of Calabria and University of Geneva

Research experience

Scientific Research areas of interest

Active Plasmonics / Metamaterials
Switchable / Tunable Photonic systems
Band Gap Materials / Organic Lasers
Self-assembled nanostructured Materials

Holography / Lithography
Polymerization-driven diffusion processes
Dynamic two-wave mixing

Sep. 2014 – Aug. 2016	Principal investigator	Stretchable Plasmonic Couplers for Sensing Applications (SPLASCOSA)	University of Technology of Troyes (France)
<ul style="list-style-type: none"> o Stained glasses are a typical example of plasmonic systems. Responsible of their beautiful colours is the interaction of light with very tiny metal particles. A device made of a single layer of gold nanoparticles on a flexible substrate can even change its colour when stretched. Preliminary experiments, performed by the proposer have exactly shown these results: by stretching such a substrate, the nanoparticles sitting on it change their relative distance and modify the way they interact with light. The knowledge of this interaction is useful for realizing many novel functional devices, e.g. high sensitive strain sensors. The best way of acquiring this knowledge is through the direct observation of the displacement that nanoparticles undergo during the strain. This aim is actually quite difficult and ambitious to realize but at LNIO/UTT there are all needed facilities and expertise for enabling it. 			
Sep. 2009 – Aug. 2012	Research responsible	Self-Organized Nanomaterials for Tailored Optical and Electrical Properties - NANOGOLD	Physics Department, University of Calabria
<ul style="list-style-type: none"> o The NANOGOLD project aims at the fabrication and application of bulk electro-magnetic metamaterials through self-organization of organic-inorganic composite materials containing resonant entities. To tune and optimize electromagnetic properties, resonance and interference at different length scales will be implemented. A key element for the success of the project is the realization of meta-atoms made of clusters of nanoparticles that should represent the building blocks of the meta-material. In this perspective, the utilization of holographic structures containing resonant sub-entities, confined in specific positions, can represent a useful mean for realizing the meta-material. A first approach consists in the fabrication of POLICRYPS-like structures prepared with chemical mixtures including, in addition to the normally utilized components, also special Ag or Au nanoparticles coated with polymers or surrounded by liquid crystal molecules. First results demonstrated the possibility to confine NPs in the channels of periodical structures. A Spectrophotometric characterization of these structures has evidenced a polarization dependent plasmonic response that can be properly tuned by applying external temperature or electric fields. 			
Jul 2007 – Jun.. 2008	Principal investigator	Nanocavity Organic Laser Arrays Realized in Holographic Sculptured Polymeric Structures - NANOLAPS	Physics Department, University of Calabria
<ul style="list-style-type: none"> o Realization of laser systems of new generation. The basic idea is that of writing, by holographic means, periodic structures made of an array of polymeric channels. These channels are filled up with a chiral liquid-crystalline material doped with a very low concentration of fluorescent materials. The main aim is to orient the helices of the chiral material along the polymeric channels. On this way, by using an external optical pumping, it is possible to obtain laser action along the helices axe. Because the chiral material can be controlled by external actions (electrical and magnetic fields, temperature), the lasing properties can also be changed and completely switched off at will. The extremely reduced sizes of the obtainable devices can open new opportunities for the realization of a series of new applications (e.g. 			

innovative lighting systems, telecommunications and biomedical systems).

Jul 2005 – Jun.. 2007	Senior Scientist (Marie Curie fellow)	<i>Diffraction Structures for Colour Separation in Backlight Display Systems – Gloss-EE</i>	Philips Research Europe, Eindhoven (NL)
<ul style="list-style-type: none">○ Theoretical study of backlight display systems of new concept. Actual display systems present a very low efficiency (about 5%) in the light management: several optical layers absorb much of the light intensity produced by the lamps of the device and only a small portion of that arrives to the eyes of the user. A new idea has been developed to improve the actual situation. If a diffraction grating is put on top of the lightguide, that distributes the light all over the display, the main three colors (red, green and blue) of the source can be separated by the grating and addressed (by a system of micro-lenses) to the right pixels of the display. This can avoid the use of light-wasting color filters in front of the pixel matrix.○ Extensive experimental characterization of photo-resist materials to be used for the realization of diffraction gratings by holographic techniques. The use of these materials has shown to be an excellent solution for fabricating diffractive structures. The flexibility of the holographic technique joined with the rather vast series of possible working parameters of photo-resist materials allow the realization of almost every desired periodical structure. The diffractive structures, obtained by changing the various experimental parameters, have been tested to verify the theoretical investigations.○ Realization of a demo of the new-concept backlight display system. The agreement between experimental results and theoretical investigations has brought us to realize a first working demo of the new-concept display system. The size of the device is still small but demonstrates the feasibility of the idea.			
Nov. 2001 – Jan. 2005	Ph.D candidate	<i>Detailed Experimental and Theoretical Characterization of POLICRYPS Diffraction Gratings</i>	Physics Department, University of Calabria
<ul style="list-style-type: none">○ Thermo-electrical characterization of POLICRYPS gratings. Preliminary investigations of the diffraction efficiency on temperature reveal a non-monotonic behavior, with several maxima and minima. The shapes of curves are dependent on slight changes in the initial concentration of the nematic component of the mixture. The dependence of the diffraction efficiency on an applied external voltage also appears to be non-monotonic: the shape depends on the sample temperature.○ Theoretical approach to results of the thermo-electrical characterization. Previous behaviors can be identified in Kogelnik theory of coupled waves. A Kogelnik-like model has been implemented which explains the presence of maxima and minima in the diffraction efficiency curves as a result of the noticeable mass distribution achieved in POLICRYPS gratings.○ Energy transfer during the curing process of POLICRYPS gratings. The simple observation of the curing process has evidenced that an energy transfer process takes place between the two curing beams. We have identified the causes of this phenomenon either in external sources of noise (setup vibrations, thermo-acoustic disturbances), either in the curing process itself. After removing external sources of noise by setup improvement, it has been possible to study the energy transfer only due to the curing process.○ Compilation of a model governing the observed energy transfer. The theoretical analysis of the effect has shown that the phenomenon can be attributed to a dynamic two-beam coupling effect which takes place during the curing process. Best fit of the experimental curves evidence a satisfactory agreement with theoretical speculations.○ Use of dye doped chiral liquid crystal materials to obtain novel organic lasing systems. The introduction of dye doped cholesteric liquid crystals instead of nematic ones in the chemical mixture usually utilized to obtain POLICRYPS gratings, has brought exciting new results. The helical periodicity of the mesomorphic material allowed the realization of an innovative lasing system which is based on a distributed feedback mechanism (DFB). The system is constituted by an array of phase locked lasing channels. The main advantage of this innovative system is that the lasing wavelength can be tuned by using external electric or temperature applied fields.			
May 2000 – Nov. 2001	Post-graduate scholar	<i>Realization and Electro-optical Characterization of Holographic Gratings in Liquid-Crystalline Composite Materials with POLICRYPS Slice Structure</i>	Physics Department, University of Calabria
<ul style="list-style-type: none">○ Improvement of POLICRYPS gratings temporal stability. The lifetime of first POLICRYPS gratings was really limited due to the appearing of liquid crystal droplets which rapidly degraded the morphology. The causes of this degradation were investigated and it turned out that the problem could be solved by utilizing a pre-polymer system which presented a better adhesion with the glass substrate. After an accurate search, an industrial chemical system has been found (NOA-61, Norland) which solved the problem. Actual POLICRYPS lifetime is more than two years.○ Compilation of a chemical-diffusive model for the description of processes involved in POLICRYPS realization. We supposed that an anisotropic step-polymerization process takes place, during the curing inside the sample, due to the illumination by a two-beam interference pattern. A diffusion process of the mobile species is induced from the polymerization, which redistributes liquid crystal molecules in dark fringes of the pattern and polymer in the bright ones.			

Mar 1999 – Mar. 2000	MSc Physics candidate	<i>Realization of Holographic Diffraction Gratings in Polydispersed Liquid-Crystalline Materials Obtained by UV Curing</i>	Physics Department, University of Calabria
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- Development of an innovative technique (MPTIPS) for the realization of diffraction gratings in liquid crystalline composite materials. This technique allows the fabrication of a new kind of holographic diffraction gratings we called POLICRYPS (Polymer - Liquid CRYstals – Polymer Slices) from their sharp and precise morphology. The MPTIPS technique allows an almost complete phase separation between the polymer and liquid crystalline that constitute the grating.
- Electro-Optical characterization of POLICRYPS gratings. The particular morphology of these diffraction gratings allows very high diffraction efficiency levels (about 98% in Bragg regime) and low light scattering losses. These gratings have been characterized in terms of switching voltages and switching times: the diffracted efficiency can be switched from a value of about 98% to 2% in a time of less than a millisecond and with typical switching voltages of about 3-5 V/ μm .
- Theoretical modeling of the chemical-physical processes involved during the realization of POLICRYPS gratings.

Publication record (*h-index 21; Total number of citations 1272 as of 11/06/2019*) (Scopus)

- o **Total number of publications: 101**, including: 78 research articles published in international peer-reviewed journals (first author on 24 papers, senior author on 22 papers); 4 international patents, 6 book chapters and 13 international conference proceedings.

Full list of papers categorized by year

1. (2019) *J. Phys. Chem. C* (in preparation) "Lattice Plasmon Modes in 2D Arrays of Au Nano-Antennas: Influence of Periodicity, Excitation Angle and Wavelength"
J. Marae-Djouda, R. Caputo, G. L ev eque, P.-M. Adam and T. Maurer.
2. (2019) *ACS Applied Nano Materials* (in preparation) "Plasmon-mediated Discrete Diffraction Behaviour of a Polymer-Liquid Crystal-Polymer Waveguides array"
L. Pezzi, L. De Sio, A. Veltri, A. Cunningham, A. De Luca, T. Buergi, G. Assanto, C. Umeton, R. Caputo
3. (2019) *RSC Advances* (accepted) "A Comprehensive Optical Analysis of Nanoscale Structures: from Thin Films to Asymmetric Nano-cavities"
G.E. Lio, G. Palermo, R. Caputo and A. De Luca.
4. (2019) *J. Phys. Chem. C* (10.1021/acs.jpcc.9b03716) "Integration of nanoemitters onto photonic structures by guided evanescent-wave nano-photopolymerisation"
G.E. Lio, J. Beltran Madrigal, X. Xu, Y. Peng, S. Pierini, C. Couteau, S. Jradi, R. Bachelot, R. Caputo, and S. Blaize.
5. (2019) *J. App. Phys.* 125, 082533 "Opto-Mechanical Control of Flexible Plasmonic Materials"
G.E. Lio, G. Palermo, R. Caputo and A. De Luca.
6. (2018) *Liquid Crystals* 45, 13-15, 2214 "Plasmonic Photo-Thermal Effects in presence of a Liquid Crystal Command Layer"
G. Palermo, A. Guglielmelli, R. Caputo, L. De Sio, A De Luca and C. Umeton.
7. (2018) *Nanoscale* 10, 35, 16556, "Flexible Thermo-plasmonics: an opto-mechanical control of the heat generated at the nanoscale"
G. Palermo, U. Cataldi, A. Condello, R. Caputo, T. B urgi, C. Umeton, and De Luca A.
8. (2018) *ACS Applied Nano Materials*, 1, 5, 2347, "Dense Brushes of Tilted Metallic Nanorods Grown onto Stretchable Substrates for Optical Strain Sensing"
J. Marae-Djouda, A. Gontier, R. Caputo, B. Bercu, Y. Madi, G. Montay, P.-M. Adam, M. Molinari, S. Stagon and T. Maurer.
9. (2018) *Sci. Rep.* 8, 17272, "Guided-mode resonant narrowband terahertz filtering by periodic metallic stripe and patch arrays on cyclo-olefin substrates"
A. Ferraro, D.C. Zografopoulos, R. Caputo and R. Beccherelli.
10. (2018) *Liquid Crystals*, 1, 12 "Investigations of dual-frequency nematic liquid crystals doped with dichroic dye"
A. Pianelli, J. Parka, P. Perkowski, R. Caputo, E. Ot on, M. Mrukiewicz, R. Mazur, K. Sielezin & K. Garbat,
11. (2018) *ACS Applied Materials & Interfaces*, 10, 29, :24750 "Directional Emission of Fluorescent Dye-Doped Dielectric Nanogratings for Lighting Applications"
A. Ferraro, D.C. Zografopoulos, M.A. Verschuuren, D.K.G. de Boer, F. Kong, H.P. Urbach, R. Beccherelli, and R. Caputo.
12. (2018) *Adv. Opt. Tech.* 7, 5, 273, "The POLICRYPS Liquid-crystalline structure for optical applications"
R. Caputo, A. De Luca, G. Strangi, R. Bartolino, C. Umeton, L. De Sio, A. Veltri, S. Serak and N. Tabiryan.
13. (2017) *Phot. Lett. Poland* 9, 1, 23, "Optical properties of gold nanorods macro-structure: a numerical study"
A. Gontier, J. Marae-Djouda, R. Caputo, M. Molinari, G. L ev eque, P.-M. Adam and T. Maurer.

14. (2017) *Phot. Lett. Poland* **9**, *1*, 17, "Control of the optically induced heating of gold nanoparticles"
G. Palermo, R. Caputo, A. De Luca and C. Umeton.
15. (2017) *Nanophotonics* **2017**, *6* (1), 279–288, "Angular Plasmon Response of Gold Nanoparticles Arrays: Approaching the Rayleigh Limit",
J. Marae-Djouda, R. Caputo, N. Mahi, G. Lévêque, A. Akjouj, P.-M. Adam and T. Maurer.
16. (2017) *J. Phys. Chem. C*, **2017**, *121* (4), pp 2388–2401, "In-depth investigation of lattice plasmon modes in substrate-supported gratings of metal monomers and dimers"
N. Mahi, G. Lévêque, O. Saison, J. Marae Djouda, R. Caputo, T. Maurer, P.-M. Adam, B. Bouhafs and A. Akjoujy.
17. (2017) *ACS Applied Materials & Interfaces* **9**, *36*, 30951, "A conformal silk-azobenzene composite for optically switchable diffractive structures"
G. Palermo, L. Barberi, G. Perotto, R. Caputo, L. De Sio, C. Umeton and F. Omenetto.
18. (2017) *Phot. Lett. Poland* **9**, *1*, 2, "Terahertz polarizing components on cyclo-olefin polymer"
A. Ferraro, D. Zografopoulos, R. Caputo and R. Beccherelli.
19. (2017) *App. Phys. Lett.* **110**, *141107*, "Investigation of guided-mode resonances in cross-shaped frequency-selective surface terahertz filters under oblique incidence"
A. Ferraro, D.C. Zografopoulos, R. Caputo and R. Beccherelli.
20. (2017) *IEEE J. Sel. Top. Quantum Elec.* **23**, *4*, 1, "Broad- and narrow-line terahertz filtering in frequency-selective surfaces patterned on thin low-loss polymer substrates"
A. Ferraro, D.C. Zografopoulos, R. Caputo, and R. Beccherelli.
21. (2017) *Phot. Lett. Poland* **9**, *1*, 5, "Recording Polycrystalline structures in photonic crystal fibers"
D. Poudereux, M. Caño-García, D. Alj, R. Caputo, C. Umeton, M.A. Geday, J.M. Otón and X. Quintana
22. (2016) *IEEE Photonics Tech. Lett.* **28** (21), 2459-2462, "Periodical Elements as Low-cost Building Blocks for Tunable Terahertz Filters"
A. Ferraro, D.C. Zografopoulos, R. Caputo and R. Beccherelli.
23. (2016) *Opt. Lett.* **41**, *9*, 2009, "Flexible terahertz wire grid polarizer with high extinction ratio and low loss"
A. Ferraro, D.C. Zografopoulos, M. Missori, M. Peccianti, R. Caputo and R. Beccherelli.
24. (2015) *Mol. Cryst. & Liq. Cryst.* **614**, *1*, 20, "Plasmomechanics: a colour-changing device based on the plasmonic coupling of gold nanoparticles"
R. Caputo, U. Cataldi, T. Bürgi and C. Umeton.
25. (2015) *Nanospectroscopy* **1**, *1*, 40, "Liquid Crystals as Active Medium: Novel Possibilities in Plasmonics"
R. Caputo, G. Palermo, M. Infusino and L. De Sio.
26. (2015) *Front. Mat. Sci.* **9**, *2*, 170, "The beginnings of plasmomechanics: towards plasmonic strain sensors"
T. Maurer, J. Marae-Djouda, U. Cataldi, A. Gontier, G. Montay, Y. Madi, B. Panicaud, D. Macias-Guzman, P.-M. Adam, G. Lévêque, T. Bürgi and R. Caputo.
27. (2015) *Nano Lett.* **15** (11), 7458, "Two-color anisotropic hybrid nano-emitters with switchable dominant emission wavelength"
X. Zhou, J. Wenger, F.N. Viscomi, L. Le Cunff, J. Béal, S. Kochtcheev, X. Yang, G.P. Wiederrecht, G. Colas des Francs, A. Singh Bisht, S. Jradi, R. Caputo, H. Volkan Demir, R.D. Schaller, J. Plain, A. Vial, X. Sun and R. Bachelot.
28. (2015) *J. Vac. Sci. Tech. B*, **33**, 06FD06, "Enhanced adhesion of electron beam resist by grafted monolayer PMMA brush"
F. Viscomi, R.K. Dey, R. Caputo and B. Cui
29. (2015) *App. Phys. Lett.* **107**, *201101*, "Polar POLICRYPS diffractive structures generate cylindrical vector beams"
D. Alj, S. Paladugu, R. Caputo, G. Volpe and C. Umeton.
30. (2014) *J. Mater Chem. C* **2**, 7927, "Growing gold nanoparticles on a flexible substrate to enable simple mechanical control of their plasmonic coupling"
U. Cataldi, R. Caputo, Y. Kurylyak, G. Klein, M. Chekini, C. Umeton and T. Bürgi.
31. (2014) *Opt. Lett.* **39**, *21*, 6201, "From Cartesian to Polar: A new POLICRYPS Geometry for Realizing Circular Optical Diffraction Gratings"
D. Alj, R. Caputo, C. Umeton.
32. (2013) *Liq. Cryst. Rev.* **1**, *1*, 2, "POLICRYPS composite structures: realization, characterization and exploitation for electro - optical and all-optical applications"
L. De Sio, A. Veltri, R. Caputo, A. De Luca, G. Strangi, R. Bartolino, C. Umeton.
33. (2012) *Riv. Nuovo Cimento* **35**, 575, "Soft matter structures: from switchable diffraction gratings to active plasmonics",
L. De Sio, A. Veltri, R. Caputo, A. De Luca, G. Strangi, R. Bartolino, C. Umeton.
34. (2012) *Nanoscale* **4**, 7619, "Double active control of the plasmonic resonance of a gold nanoparticle array",
L. De Sio, A. Cunningham, V. Verrina, C.M. Tone, R. Caputo, T. Bürgi, C. Umeton.

35. (2012) *Mol. Cryst. Liq. Cryst.* **559**, *1*, 194, "Plasmon resonance tunability of Gold nanoparticles embedded in a confined Cholesteric Liquid Crystal host",
R. Caputo, L. De Sio, U. Cataldi and C. Umeton.
36. (2012) *Mol. Cryst. Liq. Cryst.* **558**, *1*, 22, "Fabrication and Characterization of Stretchable PDMS Structures doped with Au Nanoparticles",
U. Cataldi, P. Cerminara, L. De Sio, R. Caputo and C. Umeton.
37. (2012) *Mol. Cryst. Liq. Cryst.* **553**, *1*, 111, "Realization and Characterization of POLICRYPS-like Structures including Metallic Subentities",
R. Caputo, L. De Sio, J. Dintinger, H. Sellame, T. Scharf and C. Umeton.
38. (2012) *Mol. Cryst. Liq. Cryst.* **558**, *1*, 46, "Molecular Orientation of E7 Liquid Crystal in POLICRYPS Holographic Gratings: A Micro-Raman Spectroscopic Analysis",
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100. (2013) "Active Plasmonics in Self-organized Soft Materials". In: Rockstuhl, C. and Scharf, T. Ed. "Amorphous Nanophotonics", (Chapter 12) Springer. R. Caputo, L. De Sio, U. Cataldi, and C. Umeton
101. (2011) "POLICRYPS Composite Materials: Features and Applications". In: Těšinova, P. Ed. "Advances in Composite Materials - Analysis of Natural and Man-Made Materials", (Chapter 5) InTech. R. Caputo, L. De Sio, A. Veltri, A.V. Sukhov, N.V. Tabiryan and C.P. Umeton

Conference contributions

- o 18 **Invited oral** presentations at international conference/symposia (presenting author) in a total of more than 60 **oral/poster** presentations

- (2018) XXII Conference on Liquid Crystals: Chemistry, Physics and Applications, Jastrzębia Góra (Poland)
 - Oral:** "Plasmonic Photo-Thermal Effects in presence of a Liquid Crystal Command Layer"
 - G. Palermo, A. Guglielmelli, U. Cataldi, T. Bürgi, L. De Sio, N. Tabiryan, C. Umeton and R. Caputo
- (2018) Plasmonica 2018, Florence (Italy)
 - Oral:** "Flexible Thermo-plasmonics: mechanically actuated control of the photo-induced heat generation"
 - G. Palermo, U. Cataldi, A. Condello, R. Caputo, T. Bürgi, C. Umeton, A. De Luca
- (2018) META'18, 9th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Marseille(France)
 - Invited:** "Plasmo-Mechanical Control of Photo-Induced Heat Generation from Au Nanoparticles Immobilized on a Flexible Substrate"
 - R. Caputo, G. Palermo, A. Condello, U. Cataldi, T. Bürgi, C.P. Umeton and A. De Luca
- (2018) Fotonica 2018 "Convegno italiano di tecnologie fotoniche", Lecce, Italy
 - Invited:** "Terahertz Guided-Mode Resonant Filtering Components"
 - A. Ferraro, D.C. Zografopoulos, R. Caputo and R. Beccherelli
- (2017) 13th Workshop "NOVEL OPTICAL MATERIALS AND APPLICATIONS", Cetraro, Italy
 - Invited:** "Narrow and broad band terahertz transmission filters"
 - R. Caputo, A. Ferraro, D.C. Zografopoulos and R. Beccherelli
 - Poster:** "Single Substrate in-Plane Reconfigurable Liquid Crystal Layer for Active Plasmonics"
 - V. Tassone, G. Palermo, A. De Luca, L. De Sio, R. Caputo, N. Tabiryan and C. Umeton
- (2016) META16, 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Malaga (Spain)

- Invited:** "The Active Plasmonics Paradigm"
[R. Caputo](#), L. De Sio, U. Cataldi, T. Maurer and R. Bachelot
 (2016) Energy, Materials and Photonics (EMP) Conference, Troyes, France
- Invited:** "Color Control of an Ensemble of Plasmonic Subunits"
[R. Caputo](#), J. Marae-Djouda, N. Mahid, G. Lévêque, A. Akjouj, P.-M. Adam and T. Maurer
 (2016) Energy, Materials and Nanotechnology (EMN) Meeting on Light-Matter Interactions, Singapore
- Invited:** "From Random to Periodic: Perspectives in Plasmomechanics"
[R. Caputo](#), J. Marae-Djouda, G. Lévêque, N. Mahi, A. Akjouj, P.-M. Adam and T. Maurer
 (2016) Optical Nanospectroscopy III, The third annual conference of the COST Action MPI 302, Rome, Italy
- Oral:** "Angular Behaviour of 2D sub-wavelength Arrays of Au Nano-cylinders"
[R. Caputo](#), J. Marae-Djouda, G. Lévêque, P.-M. Adam and T. Maurer
 (2016) Energy, Materials and Nanotechnology (EMN) Meeting on Liquid Crystals, Orlando, FL (USA)
- Invited:** "Polar POLICRYPS Photonic Structures: Features and Possibilities"
[R. Caputo](#), D. Alj, S. Paladugu, G. Volpe and C. Umeton
 (2015) 12th Workshop "NOVEL OPTICAL MATERIALS AND APPLICATIONS", Cetraro, Italy
- Invited:** "Two-Color Plasmonic Hybrid Nano-Emitter"
 R. Bachelot, X. Zhou, G.P. Wiederrecht, X. Sun, J. Plain, R. Caputo, G. Colas des Francs, H.V. Demir
Poster: "Plasmonic-Hybrid Anisotropic Nanoemitters"
 F. Viscomi, X. Zhou, G.P. Wiederrecht, X. Sun, J. Plain, R. Caputo, G. Colas des Francs, H.V. Demir and R. Bachelot
 (2015) EIPBN 2015, San Diego, CA (USA)
- Poster:** "Enhanced adhesion of electron beam resist by grafted monolayer PMMA brush"
 F. N. Viscomi, R.K. Dey, R. Caputo, B. Cui
 (2015) Optical Nanospectroscopy II, Dublin (Ireland)
- Poster:** "First steps towards Plasmomechanics: Experimental and theoretical characterization of a prototype"
 R. Caputo, T. Maurer, J. Marae-Djouda, U. Cataldi, A. Gontier, G. Montay, Y. Madi, B. Panicaud, D. Macias-Guzman, P.-M. Adam, G. Lévêque, T. Bürgi
 (2014) 2nd Inter. Res. and Pra. Conference: Nanotechnology and Nanomaterials (NANO 2014), Lviv (Ukraine)
- Invited:** "Plasmomechanics: triggering and controlling the plasmonic coupling at the nanoscale through macroscale applied strains"
[R. Caputo](#), U. Cataldi, Y. Kurylyak, G. Klein, M. Chekini, C. Umeton and T. Bürgi
 (2014) 7th Italian-Japanese Workshop on Liquid Crystals and 11th National SICL Meeting, Ravenna (Italy)
- Invited:** "Active Plasmonics: Systems Design and Characterization"
[R. Caputo](#), U. Cataldi, L. De Sio, T. Bürgi and C. Umeton
 (2014) 5th International Conference on Advanced Nanomaterials, Aveiro (Portugal)
- Oral:** "Nanogauges for plasmonic Strain Sensors"
 T. Maurer, U. Cataldi, A. Gontier, J. Marae-Djouda, Y. Madi, P.-M. Adam, G. Montay, T. Bürgi and R. Caputo.
 (2014) 1st New Frontiers in Plasmonics and Nano-Optics (NANOPLASM 2014), Cetraro, Italy
- Oral:** "Smart tapes: a simple macroscale mechanical control of the plasmonic coupling at the nanoscale"
 R. Caputo, U. Cataldi, Y. Kurylyak, G. Klein, M. Chekini, C. Umeton and T. Bürgi
Poster: "Photoinduced trans-cis isomerization and temperature stability of azosilk-4"
 L. Barberi, G. Palermo, R. Caputo, L. De Sio, G. Perotto, F. Omenetto & C. Umeton
 (2014) Optical Nanospectroscopy I, Tuebingen (Germany)
- Poster:** "Active Plasmonics: Systems design and Spectroscopical Characterization"
 R. Caputo, U. Cataldi, L. De Sio, T. Bürgi and C. Umeton
 (2013) 34th Progress In Electromagnetics Research Symposium (PIERS 2013), Stockholm, Sweden
- Invited:** "Tunable Plasmonic Behaviour of Micro-Structured Composite Materials"
[R. Caputo](#), L. De Sio, M. Castriota and C. Umeton
 (2013) 11th Workshop "NOVEL OPTICAL MATERIALS AND APPLICATIONS", Cetraro, Italy
- Poster:** "Liquid Crystals Active Plasmonics"
 V. Verrina, L. De Sio, A. Cunningham, C.M. Tone, R. Caputo, T. Bürgi and C. Umeton
Poster: "Active plasmonics in nanostructured soft-elastomeric matter"
 U. Cataldi, A. Cunningham, F. Ceminara, G. Klein, M. Chekini, L. De Sio, R. Caputo, T. Bürgi and C. Umeton
 (2013) 4th International Conference on Metamaterials (META'13), Sharjah, United Arab Emirates
- Invited:** "Tunable Plasmonics: A New Route towards Optical Metamaterials"
[R. Caputo](#), L. De Sio, U. Cataldi, L. Pezzi and C. Umeton
 (2012) Asia Communications and Photonics Conference (ACP2012), Guangzhou, China
- Invited:** "Active Plasmonic: from Random to Periodic",
 C. Umeton, L. De Sio, R. Caputo, U. Cataldi, L. Pezzi
Oral: "Gold nanoparticles embedded in flexible materials: new frontiers in Plasmonics"
 R. Caputo, U. Cataldi, A. Cunningham, L. De Sio, T. Bürgi and C. Umeton
 (2012) 8th EOS Topical Meeting on Diffractive Optics (DO 2012), Delft, Netherlands

- Invited:** "All optical switchable diffraction gratings realized in liquid crystalline composite structure with metamaterial applications"
C. Umeton, L. De Sio, R. Caputo, S. Serak, N. Tabiryan.
- Oral:** "Self-organisation of Nematic Gold Nanoparticles in Periodic Polymeric Structures"
R. Caputo, B.J. Tang, L. De Sio, G.H. Mehl, C. Umeton.
- (2011) 4th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics, Barcelona, Spain.
Poster: "Fabrication techniques towards large area metamaterial devices"
U. Cataldi, R. Caputo, L. De Sio, C.P. Umeton.
Poster: "Plasmonic properties of light sculptured structures including liquid crystals doped with metal nanoparticles"
L. De Sio, U. Cataldi, R. Caputo, C.P. Umeton.
Poster: "Soft matter template containing metallic subunits dissolved in self-organized materials"
L. De Sio, R. Caputo, U. Cataldi, C.P. Umeton.
- (2011) 14th International Topical Meeting on Optics of Liquid Crystals, Yerevan, Armenia
Invited: "POLICRYPS: from gratings to metamaterials"
C. Umeton, R. Caputo, L. De Sio, A.V. Sukhov and N. Tabiryan
Oral: "Policryps assisted self-organization of Nematic Gold Nanoparticles"
R. Caputo, B.J. Tang, L. De Sio, G. H. Mehl and C. Umeton.
- (2011) NANOGOLD Dissemination Workshop, Lausanne, Switzerland
Invited: "Self-organization of liquid crystal phases doped with metal nanoparticles in periodical polymeric structures".
[R. Caputo](#), L. De Sio, U. Cataldi, C. Umeton.
Poster: "Self-organization of liquid crystal phases doped with metal nanoparticles in periodical polymeric structures".
R. Caputo, L. De Sio, U. Cataldi, C. Umeton.
- (2011) SPIE Optics + Photonics 2011, San Diego, USA
Invited: "Universal soft matter template: from photonic to metamaterial applications"
C. Umeton; L. De Sio; R. Caputo; S. Ferjani, G. Strangi, and R. Bartolino
Oral: "Metallic subentities embedded in micro-periodic composite structure"
L. De Sio; R. Caputo; U. Cataldi; J. Dintinger; H. Sellame; T. Scharf; C. Umeton
- (2011) 10th Workshop "NOVEL OPTICAL MATERIALS AND APPLICATIONS", Cetraro, Italy
Invited: "Realization and characterization of light sculptured structures including liquid crystals and doped with metal nanoparticles"
[R. Caputo](#), L. De Sio, C. Umeton
- (2011) 11th European Conference on Liquid Crystals, Maribor, Slovenia.
Oral: "Plasmonic Response in POLICRYPS-like Structures including Metallic Subentities"
R. Caputo, L. De Sio, J. Dintinger, H. Sellame, T. Scharf and C. Umeton.
- (2010) 4th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics, Karlsruhe, Germany.
Invited: "Self-organized bottom-up metamaterial based on spatially arranged nanoparticles: concepts and realizations"
T. Scharf, J. Dintinger, H. Sellame, G. Mehl, G. Ungar, X. Zeng, C. Rockstuhl, S. Mühlig, T. Bürgi, A. Cunningham, L. De Sio, R. Caputo, V. Yannopapas, W. Meier, D. de Bruyn Ouboter, T. Schuster.
- (2010) 9th Italian Liquid Crystal Society (SICL) National Meeting, Cetraro (CS), Italy.
Oral: "Phase modulator behavior of a wedge shaped POLICRYPS diffraction grating"
R. Caputo, I. Trebisacce, L. De Sio and Cesare Umeton
- (2009) 9th Workshop "NOVEL OPTICAL MATERIALS AND APPLICATIONS", Cetraro, Italy.
Poster: "Phase modulator behavior of a wedge-shaped POLICRYPS diffraction grating"
R. Caputo, I. Trebisacce, L. De Sio and Cesare Umeton.
- (2008) 2nd International Workshop on Liquid Crystals for Photonics, Wolfson College, Cambridge, UK.
Oral: "Characterization of the diffraction efficiency of polymer-liquid-crystal-polymer slices gratings"
M. Xu, L. De Sio, R. Caputo, C.P. Umeton, A.J.H. Wachtters, D.K.G. de Boer, and H.P. Urbach.
- (2008) Boulder Workshop on Light-Controlled Liquid Crystalline Complex Adaptive Materials, USA.
Oral: "POLICRYPS structures and applications"
L. De Sio, N. Tabiryan, R. Caputo, A. Veltri, C.P. Umeton.
- (2007) 9th International Conference on Frontiers of Polymers and Advanced Materials (ICFPAM)
Invited: "Realization of a tuneable optical filter using policryps holographic gratings on glass waveguides"
D. Donisi, A. d'Alessandro, R. Asquini, R. Beccherelli, L. De Sio, R. Caputo and C. Umeton
- (2007) 8th Workshop "NOVEL OPTICAL MATERIALS AND APPLICATIONS", Cetraro, Italy.
Invited: "Short Pitch Holographic Structures for Backlight Display Applications"

- R. Caputo, L. De Sio, M.J.J. Jak, E.J. Hornix, D.K.G. de Boer and H.J. Cornelissen.
Oral: "Integrated Optic Tunable Filters using Composite Material Holographic Gratings"
 A. d'Alessandro, D. Donisi, R. Asquini, R. Beccherelli, L. De Sio, R. Caputo and C. Umeton.
- (2007) Asia Display 2007 (SID), Shanghai, China
Oral: "New System Concept for Colour Separating Backlights"
 R. Caputo, L. De Sio, M.J.J. Jak, E.J. Hornix, D.K.G. de Boer, H.J. Cornelissen and M.P.C. Krijn.
- (2006) 7th Italian Liquid Crystal Society (SICL) National Meeting, Castiglioncello (LI), Italy
Invited: "Tuneable guided wave components using POLICRYPS holographic gratings"
 A. d'Alessandro, D. Donisi, R. Beccherelli, R. Asquini, L. De Sio, R. Caputo and C. Umeton.
Oral: "Model for Inhomogeneous Photo-polymerization Processes in Multicomponent Media"
 A. Veltri, R. Caputo, C. Umeton and A.V. Sukhov.
Poster: "POLICRYPS Gratings: Theory & Practice" satisfactory
 R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton.
- (2006) 5th ODIMI workshop (Ottiche Diffrattive, Microottica e Microsistemi), Applied Physics Institute "Nello Carrara" (IFAC), CNR, Florence, Italy.
Invited: "Diffraction structures for efficiency enhancement of backlight display systems"
 R. Caputo, D.K.G. de Boer, H.J. Cornelissen, C.M. van Heesch, E.J. Hornix, M.J.J. Jak.
- (2006) Int. Workshop on Liquid Crystals for Photonics, Gent University, Gent, Belgium
Invited: "Polarised colour separation by diffractive gratings based on liquid-crystalline materials",
 D.K.G. de Boer, H.J. Cornelissen, R. Caputo.
- (2006) 2nd Marie Curie conference: "Putting the Knowledge Based Society into Practice", Manchester University, Manchester, United Kingdom.
Oral: "Diffraction grating structures for colour-separating backlights",
 R. Caputo, D.K. de Boer, H.J. Cornelissen.
- (2006) Photonics Europe (SPIE international symposium), Palais de la Musique et des Congres, Strasbourg, France
Poster: "Diffraction grating structures for colour-separating backlights",
 D.K. de Boer, R. Caputo, H.J. Cornelissen, C.M. van Heesch, E.J. Hornix, M.J. Jak.
- (2005) 11th International Topical Meeting on Optics of Liquid Crystals, Marriott Suites Clearwater on Sand Key, Florida, USA.
Invited: "Two-wave coupling during the formation of POLICRYPS diffraction gratings: Experimental results and theoretical model"
 R. Caputo, L. De Sio, A. Veltri, A.V. Sukhov, C. Umeton.
Oral: "DFB Micro-Laser Array: Helixed Liquid Crystals Embedded in Holographically Sculptured Polymeric Microcavities"
 G. Strangi, V. Barna, R. Caputo, A. de Luca, C. Versace, N. Scaramuzza, C. Umeton, and R. Bartolino, G.N. Price
Poster 1: "Optical Feedback for vibration control in a holographic setup"
 R. Caputo, A. de Luca, L. De Sio, A. Veltri, A.V. Sukhov, C. Umeton.
Poster 2: "Model for photo-induced formation of permanent diffraction gratings in liquid crystalline composite materials"
 A. Veltri, R. Caputo, A.V. Sukhov, C. Umeton
Poster 3: "Band-edge and defect modes laser action in dye doped chiral LC confined in cylindrical microcavities"
 V. Barna, S. Ferjani, A. de Luca, R. Caputo, N. Scaramuzza, C. Versace, G. Strangi.
- (2005) 7th Workshop "NOVEL OPTICAL MATERIALS AND APPLICATIONS", Cetraro, Italy.
Oral: "In-situ Optical Control and Stabilization of the Curing Process of POLICRYPS Gratings"
 L. De Sio, R. Caputo, A. de Luca, A. Veltri, A.V. Sukhov, C. Umeton.
Oral: "DFB Micro-Laser Array: Helixed Liquid Crystals Embedded in Holographically Sculptured Polymeric Microcavities"
 G. Strangi, V. Barna, R. Caputo, A. de Luca, C. Versace, N. Scaramuzza, C. Umeton, and R. Bartolino, G.N. Price.
- (2005) 8th European Conference on Liquid Crystals, Sexten Haus, Sesto, Italy.
Invited: "DFB micro-laser array: helixed liquid crystals embedded in holographically sculptured polymeric microcavities"
 G. Strangi, V. Barna, R. Caputo, A. de Luca, C. Versace, N. Scaramuzza, C. Umeton, and R. Bartolino, G.N. Price.
Poster 1: "Optical feedback for vibration control in a holographic setup"
 R. Caputo, A. de Luca, L. De Sio, A. Veltri, A.V. Sukhov, C. Umeton.
Poster 2: "Fluorescence and laser actions in cylindrical micro-resonators"
 G. Strangi, V. Barna, S. Ferjani, A. de Luca, R. Caputo, N. Scaramuzza and C. Versace.
- (2004) 2nd Japanese-Italian Workshop on Liquid Crystals, Tsu, Japan.
Invited: "Realization of POLICRYPS Gratings: Optical and Electro-Optical Properties",
 R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton.

- Oral:** "Color Tunable Distributed Feedback Organic Micro-Cavity Laser"
G. Strangi, V. Barna, R. Caputo, A. de Luca, C. Versace, N. Scaramazza, C. Umeton, R. Bartolino.
- (2004) International School of Liquid Crystals, 11th Workshop, Centro "Ettore Majorana", Erice, Italy.
Oral: "Experimental and Theoretical Aspects of POLICRYPS Gratings"
R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton
- (2004) VI Congresso Nazionale SICL, Hotel Continental Terme, Ischia, Italy.
Oral: "Color Tunable Distributed Feedback Organic Micro-Cavity Laser"
G. Strangi, V. Barna, R. Caputo, A. de Luca, C. Versace, N. Scaramazza, C. Umeton, and R. Bartolino
- (2003) 16th Annual Meeting IEEE Lasers & Electro-Optic Society, Tucson Arizona, USA.
Oral: "Novel Permanent and Electrically Switchable Diffraction Gratings made of Polymeric Slides and Nematic Liquid Crystal Layers"
A. d'Alessandro, R. Asquini, C. Gizzi, R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton
- (2003) 10th International Topical Meeting on Optics of Liquid Crystals, Centre Paul Langevin, Aussois, France.
Invited: "Experimental comparison between properties of POLICRYPS and PDLC permanent diffraction gratings"
R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton
Oral: "Diffraction and polarization properties of POLICRYPS permanent and switchable gratings"
R. Asquini, C. Gizzi, F. Antonelli, A. d'Alessandro, R. Caputo, A. Veltri, C. Umeton
Poster 1: "Dynamical behaviour of POLICRYPS gratings"
A. Marino, F. Vita, V. Tkachenki, R. Caputo, C. Umeton, A. Veltri, G. Abbate
Poster 2: "Numerical simulation of Photo-induced formation of permanent diffraction gratings in liquid crystalline composite materials" A. Veltri, R. Caputo, A.V. Sukhov, C. Umeton
Poster 3: "Experimental comparison between properties of POLICRYPS and PDLC permanent diffraction gratings"
R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton
- (2003) 6th Workshop "NOVEL OPTICAL MATERIALS AND APPLICATIONS", Cetraro, Italy.
Poster 1: "Two-wave coupling of UV waves due to photo polymerisation in nematic-containing composites"
R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton.
Poster 2: "A numerical approach to the beam coupling which occurs during the formation of holographic gratings in polymeric composite materials" A. Veltri, R. Caputo, L. De Sio, A.V. Sukhov, C. Umeton
- (2002) V Congresso Nazionale SICL, Centro "Ettore Majorana", Erice, Italy.
Oral: "Optical characterisation at wavelength of 1549 nm of switchable POLICRYPS diffraction gratings" R. Asquini, A. d'Alessandro, C. Gizzi, R. Caputo, A. Veltri, C. Umeton, A.V. Sukhov
- (2002) Italian-Japanese liquid crystal workshop, Centro "Ettore Majorana", Erice, Italy.
Poster: "Tunable Bragg Diffraction Gratings in POLICRYPS Morphology"
R. Caputo, A.V. Sukhov, C. Umeton, A. Veltri
- (2001) 9th International Topical Meeting on Optics of Liquid Crystals, Hilton Sorrento Palace, Sorrento, Italy.
Oral: Mass Transfer Processes Induced by Inhomogeneous Photo-polymerisation in a Multicomponent Medium" R. Caputo, A.V. Sukhov, C. Umeton, A. Veltri
- (2001) INFM Meeting, Palazzo dei Congressi, Rome, Italy.
Poster: "Mass Transfer Processes Induced by Inhomogeneous Photo-polymerisation in a Multicomponent Medium"
R. Caputo, A.V. Sukhov, C. Umeton, A. Veltri
- (2000) INFM Meeting, Magazzini del Cotone, Genoa, Italy.
Poster: "Photo-polymerisation induced diffusion in liquid crystalline composite materials"
R. Caputo, A.V. Sukhov, N.V. Tabyrian, C. Umeton, R.F. Ushakov
- (1999) 44th SPIE Annual Meeting and Exhibition, Denver Colorado, USA.
Invited: "Empirical description of spatially inhomogeneous photopolymerization in liquid crystals"
R. Caputo, N.V. Tabyrian, C. Umeton

Other activities

Nov. 2005	Personal development, intensive course participation: "High impact presentations"	Philips Research Europe, Eindhoven, The Netherlands
Oct. 2005	Personal development, intensive course participation: "Intercultural awareness"	Philips Research Europe, Eindhoven, The Netherlands
May 2004	Winner of the action "Enterprise creation sustainability and diffusion of entrepreneurial culture in technological-scientific	University of Calabria

faculties" within "Oracolo – Azione 5" project – Scientific Research, Technological Development, High Formation 2000-2006

Oct. 2003 – Apr. 2004 Participation to the action "Enterprise creation sustainability and diffusion of entrepreneurial culture in technological-scientific faculties" within "Oracolo – Azione 5" project – Scientific Research, Technological Development, High Formation 2000-2006, University of Calabria Faculty of Sciences, University of Calabria. Entrepreneurial proposal: "Development of electro-optical devices with high technological content" University of Calabria

Commissions of trust

- o Member of international peer evaluation committees of funding applications:
Evaluator for the [Italian Ministry of Education, University and Research \(MIUR\)](#), Italy since 2014;
Evaluator for the [National Science Center](#), Poland since 2015;
Evaluator for the [National Research, Development and Innovation Office \(NKFI\)](#), Hungary since 2018.
- o Member of the Organizing Committee of international conferences and meetings including [NOMA](#) (Novel Optical Materials & Applications) and [NANOPLASM](#) (New Frontiers in Plasmonics and NanoOptics)
- o Referee for NPG (Scientific Reports), ACS (J. of Phys. Chem. Phot.), Wiley (Laser & Phot Rev.) OSA (Opt. Lett.; Opt. Exp.; App. Opt.), IOP (J. of Phys. D), Elsevier (Opt. & Laser Tech., Eur. Pol. J), IEEE (Phot., Elec. Dev. Lett.)

Languages

- o Italian - native speaker
- o English - fluent
- o French - intermediate
- o Dutch - basic knowledge (A2+ level, STE Studiecentrum Talen Eindhoven)
- o German - basic knowledge
- o Ukranian - basic knowledge

References

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