

Dott. Roberto Caputo

Indirizzo di lavoro

Dipartimento di Fisica & CNR-NANOTEC,
Via P. Bucci – Cubo 3 IC, Università della Calabria, 87036 Rende (CS), Italy

Telefono

+39 0984 496124

Email

roberto.caputo@unical.it

Pagina Web

www.fis.unical.it/nanolase

Scopus[®][7103321767](#)

iD ORCID

[0000-0002-0065-8422](#)

RESEARCHERID

[A-6193-2012](#)

ResearchGate

[Roberto Caputo](#)

Google Scholar

[Roberto Caputo](#)

Principali qualifiche

Abilitazione	12/04/2017	Professore Ordinario (02/B1 , Fisica Sperimentale della Materia), art. 18, comma 4, Legge n. 240/2010;	Ministero dell'Istruzione dell'Università e della Ricerca (MIUR)
Abilitazione	11/12/2013; 17/09/2019	Professore Associato (02/B1 , Fisica Sperimentale della Materia), art. 18, comma 4, Legge n. 240/2010;	Ministero dell'Istruzione dell'Università e della Ricerca (MIUR)
Dottorato in Fisica	January 2005	Titolo della dissertazione: "Detailed Experimental and Theoretical Characterization of POLICRYPS Diffraction Gratings"; Mentore: Prof. Cesare Umeton	Dipartimento di Fisica Università della Calabria
Laurea in Fisica	March 2000	Titolo della dissertazione: "Studio e Caratterizzazione di Reticoli Olografici in Materiali Compositi Liquido- cristallini con Curaggio UV"; Mentore: Prof. Cesare Umeton	Dipartimento di Fisica Università della Calabria

Posizione lavorativa attuale

Da Ottobre 2007	Ricercatore di Ruolo a tempo indeterminato (02/B1 , Fisica Sperimentale della Materia; SSD FIS-03) Co-Direttore del gruppo di Ricerca NANOLASE	Dipartimento di Fisica Università della Calabria
-----------------	--	---

Incarichi individuali in Italia e all'estero

Periodo	Ruolo	Progetto	Luogo
Set. 2014 – Ago. 2016	Professeur Invité	Stretchable Plasmonic Couplers for Sensing Applications (SPLASCOSA)	Université de Technologie de Troyes (Francia)
Mar.-Apr. 2014	Visiting researcher	COST action IC1208 "Integrating devices and materials: a challenge for new instrumentation in ICT"	Bilkent University, Ankara (Turkey)
Set.-Ott. 2013	Visiting researcher	COST action IC1208 "Integrating devices and materials: a challenge for new instrumentation in ICT"	Université de Technologie de Troyes (Francia)
Lug. 2005 – Giu. 2007	Post-doc fellow Marie-Curie	Diffraction Structures for Colour Separation in Backlight Display Systems (GLOSS-EE; FP6-MOBILITY)	Philips Research Europe, Eindhoven (Olanda)
Mag. 2000 – Nov. 2001	Borsa di studio post-Laurea	Realizzazione e caratterizzazione Elettro-Ottica di Reticoli Olografici in Materiali Compositi Liquido- Cristallini con Struttura a Strati di tipo POLICRYPS	Istituto Italiano per la Fisica della Materia (INFN), Università della Calabria

Premi e riconoscimenti

Giu. 2006	Premio per Tesi di Dottorato attribuito dalla Società Italiana di Cristalli Liquidi (SICL)	Conferenza SICL 2006, Castiglione (Italy)
-----------	---	--

Attività di Leadership a livello internazionale

2012 - 2016	Vice-Chair e membro del Management Committee dell'azione COST ICI208 "Integrating devices and materials: a challenge for new instrumentation in ICT"	European Cooperation in Science & Technology (COST)
2017 - oggi	Membro del Management Committee dell'azione COST action CAI6220 "European Network for High Performance Integrated Microwave Photonics"	European Cooperation in Science & Technology (COST)
2018 - oggi	Membro eletto del Comitato Direttivo della Società Italiana di Cristalli Liquidi (SICL)	Società Italiana di Cristalli Liquidi (SICL)
2019 - oggi	Membro del Consiglio Unificato di Corso di Laurea in Scienza dei Materiali	Università della Calabria
2007 - oggi	Coordinatore di accordi bilaterali Erasmus tra l'Università della Calabria e: Université de Technologie de Troyes (UTT), Military University of Technology Warsaw (MUT), Eindhoven University of Technology (TU/e);	Università della Calabria
2007- oggi	Membro del Collegio Docenti del corso di Dottorato in: "Scienze e Tecnologie Fisiche, Chimiche e dei Materiali"	Università della Calabria

Attività di Terza Missione

2012 - 2014	Responsabile del Progetto Lauree Scientifiche (PLS) per il corso di Laurea in Scienza dei Materiali, disseminazione della cultura scientifica e orientamento nelle scuole medie superiori	Dipartimento di Fisica – Università della Calabria
2012 - 2013	Responsabile "Progetto Didattico Nazionale – Stage in Scienza dei Materiali", disseminazione della cultura scientifica e orientamento nelle scuole medie superiori	Dipartimento di Fisica – Università della Calabria
2004	Partecipazione all'organizzazione della mostra divulgativa itinerante "Semplice e Complesso"	Università della Calabria
2001	Partecipazione all'organizzazione della mostra divulgativa "Frammenti di Imparagiocando – La Scienza in Gioco"	Convento S. Agostino - Cosenza
1998	Dimostratore nell'ambito della mostra divulgativa "Sperimentando"	Casa delle Culture - Cosenza

Attività didattica

- o Professore incaricato di insegnamenti curriculari e a scelta in corsi di Laurea Triennale e Magistrale con programmi che trattano argomenti di Fisica di base (Meccanica, Dinamica, Termodinamica, Elettromagnetismo, Ottica, Fotonica) e argomenti avanzati di Fisica della Materia e Tecniche Spettroscopiche;
- o Relatore di Tesi di Laurea Triennale ([9 studenti](#)), Magistrale ([10 studenti](#)), Dottorato di Ricerca ([4 studenti](#)) e Tesi di Tirocini Formativi Attivi (TFA, [4 studenti](#));
- o Docente in corsi abilitanti e Tirocini Formativi Attivi (TFA, classe di insegnamento A059);
- o Docente e dimostratore in occasione di eventi di disseminazione scientifica (Progetto Lauree Scientifiche, Progetto Didattico Nazionale, Notte dei Ricercatori, Mostre scientifiche divulgative);
- o Docente su invito per corsi brevi durante scuole estive e vincitore di borse di mobilità per docenti (Erasmus+) in Olanda (2009) e Francia (2019);

Docenza in corsi di Laurea Triennale e Magistrale

Periodo	Role	Corso	Major	Luogo
2016/17 e seguenti	Docente/ Esercitatore	Spettroscopie Lineari e non Lineari	Laurea Magistrale in Fisica	Dipartimento di Fisica, Università della Calabria

Da 2007/08 a 2008/09	Docente	Tecniche Spettroscopiche	Laurea Magistrale in Fisica	Facoltà di SMFN, University of Calabria
Da 2001/02 a 2011/12	Esercitatore	Introduzione al Metodo Sperimentale	Laurea Triennale in Fisica	Facoltà di SMFN, University of Calabria
2018/19 e seguenti	Docente	Caratterizzazione Fisica dei Materiali	Laurea Triennale in Scienza dei Materiali	Dipartimento di Fisica, Università della Calabria
Da 2016/17 a 2018/19	Docente/ Esercitatore	Fisica dei Materiali Innovativi	Laurea Triennale in Scienza dei Materiali	Dipartimento di Fisica, Università della Calabria
Da 2016/17 a 2018/19	Esercitatore	Proprietà Elettromagnetiche dei Materiali	Laurea Triennale in Scienza dei Materiali	Dipartimento di Fisica, Università della Calabria
2013/14	Esercitatore	Proprietà Elettromagnetiche dei Materiali	Laurea Triennale in Scienza dei Materiali	Dipartimento di Fisica, Università della Calabria
2013/14	Esercitatore	Meccanica dei Fluidi	Laurea Triennale in Scienza dei Materiali	Dipartimento di Fisica, Università della Calabria
2016/17	Esercitatore	Fisica II	Laurea Triennale in Scienze Geologiche	Dipartimento DiBEST, Università della Calabria
Da 2009/10 a 2010/11	Docente/ Esercitatore	Elementi di Elettricità e Magnetismo	Laurea Triennale in Scienze Geologiche	Facoltà di SMFN, Università della Calabria
2008/09	Docente/ Esercitatore	Elementi di Meccanica e Termodinamica	Laurea Triennale in Scienze Geologiche	Facoltà di SMFN, Università della Calabria
Da 2007/08 a 2011/12	Esercitatore	Introduzione alla Fisica della Materia	Laurea Triennale in Tecnologie Restauro	Facoltà di SMFN, Università della Calabria
10/2011 – 09/2012	Docente/ Esercitatore	Fotonica Molecolare	Laurea Triennale in Tecnologie Restauro	Facoltà di SMFN, Università della Calabria
Da 2003/04 a 2004/05	Esercitatore	Progetto di Optoelettronica	Laurea Triennale in Ingegneria Elettronica	Facoltà di Ingegneria, Università della Calabria
2012/13	Docente	Didattica delle Scienze della Materia	Tirocini Formativi Attivi (TFA) Classe A059	Università della Calabria
Da 2001/02 a 2004/05	Tutor	Attività di Tutoraggio per gli studenti del primo anno, corsi della Facoltà di SMFN	Laurea Triennale in Fisica, Chimica, biologia, Matematica	Facoltà di SMFN, Università della Calabria

Corsi brevi tenuti all'estero

<i>Periodo</i>	<i>Ruolo</i>	<i>Corso</i>	<i>Ambito</i>	<i>Luogo</i>
Sep. 2019	Docente	From Liquid Crystals to Active Plasmonic	Erasmus+Mobility	Université de Technologie de Troyes (UTT)
Apr. 2015	Docente	Plasmonics and Nanofabrication	"Vinci Project" Doctorate school, Université-franco-italienne	Université de Technologie de Troyes (UTT)
Aug-Sep 2009	Docente	POLICRYPS diffraction gratings: Theory and Applications	LLP/Erasmus Mobility	Eindhoven University of Technology (TU/e)

Relatore di progetti individuali di Dottorato di Ricerca

<i>Periodo</i>	<i>Name</i>	<i>Titolo del progetto</i>	<i>Risultati</i>	<i>Luogo</i>
Nov. 2017 – oggi	Giuseppe Emanuele Lio	Design and Realization of a Nano-guided plasmonic hybrid systems	4 published papers, 1 submitted paper	Dipartimento di Fisica, Università della Calabria

Nov. 2013 – Ott. 2016	Domenico Alj	Realization of liquid crystalline composite structures organized in non-cartesian orientations and their applications	3 published papers	Dipartimento di Fisica, Università della Calabria
Nov. 2013 – Oct. 2016	Antonio Ferraro	From basic to advanced: design, fabrication and characterization of functional Terahertz devices	6 published papers	Dipartimento di Fisica, Università della Calabria CNR-IMM Roma
Nov. 2010 – Oct 2013	Ugo Cataldi	Active plasmonics in soft matter doped with gold nanoparticles	7 published papers	Dipartimento di Fisica, Università della Calabria e University of Geneva

Attività di Ricerca

Aree scientifiche di Ricerca di interesse	
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

Gestione di Progetti di Ricerca

Periodo	Budget	Ruolo	Progetto	Ente finanziatore
Gen. 2019 - oggi	Mobilità	PI	Metamateriali attivi basati su cristalli liquidi di nuova generazione (LCMETA)	Ministero degli Affari Esteri e della Cooperazione Internazionale
Sep.2014- Aug.2016	68k€	PI	Stretchable Plasmonic Couplers for Sensing Applications (SPLASCOSA)	Champagne-Ardenne region (Francia) / Université de Technologie de Troyes
Mag.2012- Apr.2017	150k€/anno	Vice-Chair	Azione COST: "Integrating devices and materials: a challenge for new instrumentation in ICT" (N°IC1208)	European Cooperation in Science & Technology (COST)
Set.2009- Ago. 2012	350k€	Responsabile della Ricerca	FP7-NMP "Self-Organized Nanomaterials for Tailored Optical and Electrical Properties - NANOGOLD" (N°228455)	European Commission, FP7-NMP
Lug.2007- Giu. 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€	Responsabile della Ricerca	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€	Responsabile della Ricerca	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€	Responsabile della Ricerca	PRA project, "Transverse localization and optical signal processing via spatial solitons in nematic liquid crystals"	Intituto Nazionale per la Fisica della Materia (INFN)
2000- 2002	150k€	Responsabile della Ricerca	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€	Responsabile della Ricerca	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 (INFN)

Descrizione delle attività di Ricerca svolte ed esperienze acquisite nell'ambito dei progetti finanziati

Jan. 2019 – today	PI	Metamateriali attivi basati su cristalli liquidi di nuova generazione (LCMETA)	Ministero degli Affari Esteri e della Cooperazione Internazionale
<ul style="list-style-type: none"> LCMETA proposes the study of active metamaterials with tunable response based on the use of new generation liquid crystals (LCs). The project is intended as a synergic collaboration between University of Calabria (UNICAL) and Military University of Technology of Warsaw (MUT). The “Canaletto” action will support the research through selected exchange projects of mainly young researchers between the two units. 			
Sep. 2014 – Aug. 2016	PI	Stretchable Plasmonic Couplers for Sensing Applications (SPLASCOSA)	Université de Technologie de Troyes (France)
<ul style="list-style-type: none"> 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	Responsabile della Ricerca	Self-Organized Nanomaterials for Tailored Optical and Electrical Properties - NANOGOLD	Dipartimento di Fisica, Università della Calabria
<ul style="list-style-type: none"> 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	PI	Nanocavity Organic Laser Arrays Realized in Holographic Sculptured Polymeric Structures - NANOLAPS	Dipartimento di Fisica, Università della Calabria
<ul style="list-style-type: none"> 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 axis. 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)	Diffraction Structures for Colour Separation in Backlight Display Systems – Gloss-EE	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 diffraction 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	Dottorando	<i>Detailed Experimental and Theoretical Characterization of POLICRYPS Diffraction Gratings</i>	Dipartimento di Fisica, Università della 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	Borsista INFM	<i>Realization and Electro-optical Characterization of Holographic Gratings in Liquid-Crystalline Composite Materials with POLICRYPS Slice Structure</i>	Intituto Nazionale per la Fisica della Materia (INFM)
<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	Laureando in Fisica	<i>Realization of Holographic Diffraction Gratings in Polydispersed Liquid-Crystalline Materials Obtained by UV Curing</i>	Dipartimento di Fisica, Università della Calabria
<ul style="list-style-type: none"> • 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 grating 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. 			

Liste delle pubblicazioni (h-index 22; Numero totale di citazioni: 1386 al 29/01/2020) (Scopus)

- **Numero totale di pubblicazioni: 104**, che comprendono: 81 articoli di ricerca scientifica pubblicati in riviste internazionali peer-reviewed (primo autore in 24 articoli, autore senior in 24 papers); 4 brevetti internazionali, 6 capitoli di libri e 13 proceedings legati a conferenze internazionali.

Lista completa delle pubblicazioni classificate per anno

1. (2020) *Physica Status Solidi (a)* (sottomesso) "Conceptual Implementation of a Photonic-Plasmonic Transistor into a structured Nano-guided Hybrid System"
G.E. Lio and R. Caputo
2. (2020) *Optics Express* (accettato) "Tunable second harmonic generation by a dielectric metasurface via reconfigurable liquid crystal"
D. Rocco, L. Carletti, R. Caputo, M. Finazzi, M. Celebrano, and C. De Angelis.
3. (2020) *J. Phys. Chem. C* (in preparazione) "Lattice Plasmon Modes in 2D Arrays of Au Nano-Antennas: Influence of Periodicity, Excitation Angle and Wavelength"
J. Marae-Djouda, R. Caputo, G. Lévêque, P.-M. Adam and T. Maurer.
4. (2019) *J. Chem. Phys.* 151, 244707 "Tensile control of the thermal flow in plasmonic heaters realized on flexible substrates"
G.E. Lio, G. Palermo, A. De Luca and R. Caputo
5. (2019) *Nanoscale* 11, 17931 "Plasmon-mediated Discrete Diffraction Behaviour of an Array of Responsive Waveguides"
L. Pezzi, L. De Sio, A. Veltri, A. Cunningham, A. De Luca, T. Buergi, G. Assanto, C. Umeton, R. Caputo
6. (2019) *Liquid Crystals*, 1, 12 "Investigations of dual-frequency nematic liquid crystals doped with dichroic dye"
A. Pianelli, J. Parka, P. Perkowski, R. Caputo, E. Otón, M. Mrukiewicz, R. Mazur, K. Sielezin & K. Garbat,
7. (2019) *RSC Advances* 9, 21429 "A Comprehensive Optical Analysis of Nanoscale Structures: from Thin Films to Asymmetric Nanocavities"
G.E. Lio, G. Palermo, R. Caputo and A. De Luca.
8. (2019) *J. Phys. Chem. C* 123, 23, 14669 "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.
9. (2019) *J. App. Phys.* 125, 082533 "Opto-Mechanical Control of Flexible Plasmonic Materials"
G.E. Lio, G. Palermo, R. Caputo and A. De Luca.
10. (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.
11. (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. Bürgi, C. Umeton, and De Luca A.
12. (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.
13. (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.
14. (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.
15. (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.
16. (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. Lévêque, P.-M. Adam and T. Maurer.
17. (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.
18. (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.
19. (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.
20. (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.

21. (2017) *Phot. Lett. Poland* **9**, *1*, **2**, "Terahertz polarizing components on cyclo-olefin polymer"
A. Ferraro, D. Zografopoulos, R. Caputo and R. Beccherelli.
22. (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.
23. (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.
24. (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
25. (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.
26. (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.
27. (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.
28. (2015) *Nanospectroscopy* **1**, *1*, **40**, "Liquid Crystals as Active Medium: Novel Possibilities in Plasmonics"
R. Caputo, G. Palermo, M. Infusino and L. De Sio.
29. (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.
30. (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.
31. (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
32. (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.
33. (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.
34. (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.
35. (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.
36. (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.
37. (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.
38. (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.
39. (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.
40. (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.
41. (2012) *Mol. Cryst. Liq. Cryst.* **558**, *1*, **46**, "Molecular Orientation of E7 Liquid Crystal in POLICRYPS Holographic Gratings: A Micro-Raman Spectroscopic Analysis",
A. Fasanella, M. Castriota, E. Cazzanelli, L. De Sio, R. Caputo and C. Umeton.

42. (2012) *J. Opt. Soc. Am. B* **29**, *11*, 3170, "POLICRYPS Visible Curing for Spatial Light Modulator Based Holography"
M. Infusino, A. Ferraro, A. De Luca, R. Caputo and C. Umeton.
43. (2012) *Opt. Exp.* **20**, *21*, 23138, "Periodic and Aperiodic POLICRYPS Structures Realized Via Spatial Light Modulator Direct Holography"
M. Infusino, A. De Luca, V. Barna, R. Caputo and C. Umeton.
44. (2011) *J. Mat. Chem.*, **21**, *47*, 18967, "Broad band tuning of the plasmonic resonance of Gold nanoparticles hosted in self-organized soft materials",
L. De Sio, R. Caputo, U. Cataldi and C. Umeton.
45. (2011) *Mol. Cryst. Liq. Cryst.*, **549**, *1*, 29, "Phase Modulator Behaviour of a Wedge-shaped POLICRYPS Diffraction Grating",
R. Caputo, I. Trebisacce, L. De Sio and C. Umeton.
46. (2011) *Opt. Exp.*, **19**, *11*, 10494, "In situ polarized micro-Raman investigation of periodic structures realized in liquid-crystalline composite materials",
M. Castriota, A. Fasanella, E. Cazzanelli, L. De Sio, R. Caputo and C. Umeton.
47. (2010) *Opt. Exp.*, **18**, *14*, 15236, "Holographic Grating Based High Sensitivity Device for Refractive Index Measurements",
D. Donisi, R. Caputo, G. Cennini.
Paper selected for the publication on: *Virtual Journal for Biomedical Optics*, **5**, *11* (2010).
48. (2010) *Opt. Exp.*, **18**, *6*, 5776, "Jones matrix analysis of dichroic phase retarders realized in soft matter composite materials",
R. Caputo, I. Trebisacce, L. De Sio, C. Umeton.
49. (2009) *J. Opt. A: Pure Appl. Opt.* **11**, *2*, 024017, "POLICRYPS: a liquid-crystalline composed nano/micro structure with a wide range of optical and electro-optical applications",
R. Caputo, A. De Luca, L. De Sio, L. Pezzi, G. Strangi, C. Umeton, A. Veltri, R. Asquini, A. d'Alessandro, D. Donisi, R. Beccherelli, A.V. Sukhov and N.V. Tabiryan.
50. (2009) *J. Nonlin. Opt. Phys. & Mat.*, **18**, *3*, 349, "Laser action in dye doped liquid crystals: from periodic structures to random media",
A. De Luca, V. Barna, S. Ferjani, R. Caputo, C. Versace, N. Scaramuzza, R. Bartolino, C. Umeton, G. Strangi.
51. (2008) *Journal of SID* **16**, 803, "Colour-Separating Backlight for Improved LCD Efficiency",
M.J.J. Jak, R. Caputo, E.J. Hornix, L. de Sio, D.K.G. de Boer, H.J. Cornelissen.
52. (2008) *Opt. Exp.* **16**, *19*, 14532, "Characterization of the diffraction efficiency of polymer-liquid-crystal-polymer-slices gratings at normal and conical incidence",
M. Xu, L. De Sio, R. Caputo, C.P. Umeton, A.J.H. Wachtters, H.P. Urbach and D.K.G. de Boer.
53. (2008) *App. Opt.* **47**, 1363, "Characterization of an Active Control System for Holographic Set-up Stabilization",
L. De Sio, A. Veltri, A. Tedesco, R. Caputo, A.V. Sukhov, C. Umeton.
54. (2008) *Opt. Exp.* **16**, *13*, 9254, "Tunable integrated optical filter made of a glass ion-exchanged waveguide and an electro-optic composite holographic grating",
A. d'Alessandro, D. Donisi, L. De Sio, R. Beccherelli, R. Asquini, R. Caputo, C. Umeton.
55. (2008) *Mol. Cryst. Liq. Cryst.*, **486**, 31/[1073], "Realization of an optical filter using POLICRYPS holographic gratings on glass waveguides",
D. Donisi, A. d'Alessandro, R. Asquini, R. Beccherelli, L. De Sio, R. Caputo, C. Umeton.
56. (2008) *Opt. Exp.* **16**, *11*, 7619, "POLICRYPS Structures as Switchable Optical Phase Modulators",
L. De Sio, N.V. Tabyrian, R. Caputo, A. Veltri, C. Umeton.
57. (2007) *Opt. Exp.* **15**, 10540 "Short Period 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.
58. (2007) *Mol. Cryst. Liq. Cryst.* **465**, 187 "Theoretical characterization of the holographic recording of diffraction grating in multicomponent media", A. Veltri, R. Caputo, L. De Sio, C. Umeton, A.V. Sukhov.
59. (2006) *Mol. Cryst. Liq. Cryst.* **454**, 273 "Two - wave coupling during the formation of POLICRYPS diffraction gratings: Experimental results and theoretical model",
A. Veltri, R. Caputo, L. De Sio, C. Umeton, A.V. Sukhov.
60. (2006) *App. Opt.*, **45**, 3721 "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.
61. (2006) *J. Disp. Tech., IEEE/OSA* **2**, *38*, "POLICRYPS switchable holographic grating: a promising Grating Electro Optical Pixel for high resolution display application",
R. Caputo, L. De Sio, A. Veltri, C. Umeton.
62. (2006) *Opt. Exp.* **14**, 2695, "Distributed feedback micro-laser array: helixed liquid crystals embedded in holographically sculptured polymeric microcavities", V. Barna, R. Caputo, A. De Luca, N. Scaramuzza, G. Strangi, C. Versace, C. Umeton, R. Bartolino.

63. (2005) *Phys. Rev. Lett.* **94**, 063903, "Color-tunable organic microcavity laser using distributed feedback", G. Strangi, V. Barna, R. Caputo, A. de Luca, C. Versace, N. Scaramuzza, C. Umeton and R. Bartolino. Paper selected for the publication on: *Virt. J. of Nano Sci.* **11**, 8 (2005).
64. (2005) *Opt. Lett.* **30**, 1840, "Observation of two-wave coupling during the formation of POLICRYPS diffraction gratings".
R. Caputo, L. De Sio, A. Veltri, A.V. Sukhov, C. Umeton.
65. (2005) *App. Phys. Lett.* **87**, 221108, "Band Edge and Defect-Modes Lasing Due to Confinement of Helixed Liquid Crystals in Cylindrical Microcavities", V. Barna, S. Ferjani, A. De Luca, R. Caputo, N. Scaramuzza, C. Versace, G. Strangi.
66. (2005) *Mol. Cryst. Liq. Cryst.* **441**, 111, "Realization of POLICRYPS Gratings: Optical and Electro-Optical Properties",
R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton.
67. (2005) *App. Phys. Lett.* **87**, 141108, "Model for two beam coupling during the formation of holographic gratings with a nematic film-polymer-slice sequence structure",
R. Caputo, L. De Sio, A. Veltri, A.V. Sukhov, C. Umeton.
68. (2005) *J. Opt. Soc. Am. B.* **22**, 735, "Kogelnik-like model for the diffraction efficiency of POLICRYPS gratings",
R. Caputo, A.V. Sukhov, A. Veltri, C. Umeton.
69. (2004) *Appl. Phys. Lett.*, **84**, 18, 3492, "Model for the photoinduced formation of diffraction gratings in liquid-crystalline composite materials",
A. Veltri, R. Caputo, A.V. Sukhov, C. Umeton.
70. (2004) *Opt. Lett.* **29**, 1261, "Development of a new kind of holographic grating made of liquid crystal films separated by slices of polymeric material",
R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton.
71. (2004) *Opt. Lett.* **29**, 1405, "Electro optic properties of switchable gratings made of polymer and nematic liquid crystal slices",
R. Asquini, A. d'Alessandro, C. Gizzi, R. Caputo, A.V. Sukhov, C. Umeton, A. Veltri.
72. (2004) *J. Opt. Soc. Am. B.* **21**, 1939, "Characterization of the diffraction efficiency of new holographic gratings with a nematic film-polymer-slice sequence structure",
R. Caputo, A. Veltri, C. Umeton, A.V. Sukhov.
73. (2004) *Euro. Phys J. E.* **15**, 47, "Dynamical Behaviour of Policryps Gratings", A. Marino, F. Vita, V. Tkachenko, R. Caputo, C. Umeton, A. Veltri, G. Abbate.
74. (2003) *Mol. Cryst. Liq. Cryst.*, **398**, 223, "Optical characterization at wavelengths of 632.8 nm and 1549 nm of policryps switchable diffraction gratings",
R. Asquini, A. d'Alessandro, C. Gizzi, P. Maltese, R. Caputo, A. Veltri, C. Umeton, A.V. Sukhov.
75. (2002) *J. Nonlin. Opt. Phys. & Mat.*, **11** (1), 25, "Distinct Dynamic Regimes in a Material System with Optically Modulated Diffusivity"
R. Caputo, A.V. Sukhov, N.V. Tabyrian, C. Umeton.
76. (2002) *Mol. Cryst. Liq. Cryst.*, **372**, 263, "A New Kind of Photo-polymerisation Induced Diffusion in Liquid Crystalline Composite Materials",
R. Caputo, A.V. Sukhov, C. Umeton, R.F. Ushakov.
77. (2001) *J. Exp. Th. Phys.*, **92**, 1, 28, "Dynamics of Mass Transfer Caused by the Photoinduced Spatially Inhomogeneous Modulation of Mobility in a Multicomponent Medium",
R. Caputo, A.V. Sukhov, C. Umeton, R.F. Ushakov.
78. (2001) *Chem. Phys.*, **271**, 3, 323 "Mass Transfer Processes Induced by inhomogeneous photo-polymerisation in a multicomponent medium",
R. Caputo, A.V. Sukhov, N.V. Tabyrian, C. Umeton, R.F. Ushakov.
79. (2000) *J. Exp. Th. Phys.*, **91**, 6, 1190, "Formation of a Grating of Submicron Nematic Layers by Photopolymerization of Nematic-Containing Mixtures",
R. Caputo, A.V. Sukhov, C. Umeton, R.F. Ushakov.
80. (2000) *Mol. Mat.*, **12**, 169, "Experimental studies of initial stage of PDLC curing caused by UV interference pattern",
R. Caputo, A.V. Sukhov, C. Umeton.
81. (1999) *Chem. Phys.*, **245**, 463, "Efficiency dynamics of diffraction gratings recorded in liquid crystalline composite materials by a UV interference pattern",
R. Caputo, A.V. Sukhov, N.V. Tabyrian, C. Umeton.

82. (2016) 41st Int. Conf. Infrared, Millimeter, and Terahertz waves (IRMMW-THz), "Terahertz polarizer on flexible and conformal substrate", DOI: 10.1109/IRMMW-THz.2016.7758662
A. Ferraro, D. C. Zografopoulos, M. Missori, M. Peccianti, R. Caputo, R. Beccherelli.
83. (2016) 41st Int. Conf. Infrared, Millimeter, and Terahertz waves (IRMMW-THz), "Mechanically tunable Bragg filters for terahertz applications", DOI: 10.1109/IRMMW-THz.2016.7758661
A. Ferraro, D. C. Zografopoulos, M. Missori, M. Peccianti, R. Caputo, R. Beccherelli.
84. (2012) Asia Comm. And Phot. Conf., ACP2012, ATH3G.3, "Active plasmonics: From random to periodic",
C. Umeton, L. De Sio, R. Caputo, U. Cataldi and L. Pezzi.
85. (2012) Asia Comm. And Phot. Conf., ACP2012, AF4D.8, "Gold nanoparticles embedded in flexible materials: New frontiers in Plasmonics",
R. Caputo, U. Cataldi, A. Cunningham, L. De Sio, T. Bürgi and C. Umeton.
86. (2011) Proc. of SPIE 8145, DOI: 10.1117/12.892777, "Metallic subentities embedded in micro-periodic composite structure"
L. De Sio; R. Caputo; U. Cataldi; J. Dintinger; H. Sellame; T. Scharf; C. Umeton
87. (2011) Proc. of SPIE, Vol. 8114, DOI: 10.1117/12.892781, "Universal soft matter template: from photonic to metamaterial applications
C. Umeton; L. De Sio; R. Caputo; S. Ferjani, G. Strangi, and R. Bartolino
88. (2007) Proc. IEEE/LEOS I, 660, "Low driving power integrated tuneable filter using composite holographic grating on glass waveguides",
D. Donisi, A. d'Alessandro, R. Asquini, R. Beccherelli, L. De Sio, R. Caputo and C. Umeton.
89. (2007) Proc. CLEO/EUROPE (2007), "Novel tuneable optical filter made of a polymer and liquid crystal holographic grating on glass waveguides",
D. Donisi, A. d'Alessandro, R. Asquini, R. Beccherelli, L. De Sio, R. Caputo and C. Umeton.
90. (2007) Proc. of Eurodisplay, S10-2, "Colour Separating Backlight for Improved LCD Efficiency",
M.J.J. Jak, R. Caputo, E.J. Hornix, L. de Sio, D.K.G. de Boer, H.J. Cornelissen.
91. (2007) Proc. of Asia Display (SID), I, I011, "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.
92. (2006) Proc. of SPIE, 6196, 241, "Diffractive grating structures for colour-separating backlights",
D.K.G. de Boer, R. Caputo, H.J. Cornelissen, C.M. van Heesch, E.J. Hornix, M.J.J. Jak.
93. (2004) LFN2004 Conference paper, 228, "Dynamical behaviour of holographic polymer-liquid crystal gratings",
A. Marino, F. Vita, F. V. Tkachenko, R. Caputo, C. Umeton, A. Veltri, G. Abbate.
94. (2003) Proc. IEEE/LEOS I, 183, "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, A. Veltri, C. Umeton.

Brevetti internazionali

95. G. Cennini, R. Caputo, Pijlman, F. Onac, G.E., Cornelissen, H.J., Stroemer, J.F., "Controllable light-guide and display device", EU Patent EP 07106305.1 (WO/2008/125926, November 6th, 2007).
96. A. D'Alessandro, R. Beccherelli, C. Umeton, R. Asquini, D. Donisi, L. De Sio, R. Caputo, "Tuneable electro-optical filter and its realization process", US Patent 7,925,124 B2 (April 12nd 2011).
97. L. De Sio, A. Veltri, R. Caputo, A.V. Sukhov, A. de Luca, C. Umeton, "Local control and stabilization system of a device for holographic gratings writing", WO Patent WO/2007/096,932 (August 30th, 2008).
98. R. Caputo, C. Umeton, A. Veltri, A.V. Sukhov and N.V. Tabiryan, "Realization of regular layered structures made of thin liquid crystal films separated by slides of polymeric material (POLICRYPS)", European patent 1,649,318 A2 (WO 2005/006065 A2, January 25th, 2005).

Capitoli di libri

99. (2015) "Plasmonic coupling between nanostructures: from periodic rigid systems to random flexible devices". In: De Sio Ed. "Active Plasmonic Nanomaterials", Panstanford.
U. Cataldi, R. Caputo, Y. Kurylyak, G. Klein, M. Chekini, C. Umeton and T. Bürgi
100. (2015) "Liquid Crystals Order in Polymeric Microchannels". In: Thakur, V.K. Ed. "Liquid Crystalline Polymers: Processing and Applications", (Chapter 1), Springer.
G. Palermo, L. De Sio, R. Caputo, C. Umeton and R. Bartolino
101. (2015) "POLICRYPS: A Multipurpose, Application-Oriented Platform". In: Tiwari, A and Polykarpov, A Ed. "Photocured Materials", (Chapter 11) Royal Society of Chemistry.
R. Caputo, M. Infusino, A. Veltri, L. De Sio, A.V. Sukhov and C. Umeton

102. (2015) "Inhomogeneous Photopolymerization in Multicomponent Media", In: Tiwari, A and Polykarpov, A Ed. "Photocured Materials", (Chapter 5) Royal Society of Chemistry
A. Veltri, A.V. Sukhov, R. Caputo, L. De Sio, M. Infusino and C. Umeton
103. (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
104. (2011) "POLICRYPS Composite Materials: Features and Applications". In: Těšinová, 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

Lista completa delle pubblicazioni classificate per argomento

Active Plasmonics and Metamaterials

1. (2020) [Optics Express \(accettato\)](#) "Tunable second harmonic generation by a dielectric metasurface via reconfigurable liquid crystal"
D. Rocco, L. Carletti, R. Caputo, M. Finazzi, M. Celebrano, and C. De Angelis.
2. (2019) [J. Chem. Phys.](#) **151**, 244707 "Tensile control of the thermal flow in plasmonic heaters realized on flexible substrates"
G.E. Lio, G. Palermo, A. De Luca and R. Caputo
3. (2019) [RSC Advances](#) **9**, 21429 "A Comprehensive Optical Analysis of Nanoscale Structures: from Thin Films to Asymmetric Nanocavities"
G.E. Lio, G. Palermo, R. Caputo and A. De Luca.
4. (2019) [J. App. Phys.](#) **125**, 082533 "Opto-Mechanical Control of Flexible Plasmonic Materials"
G.E. Lio, G. Palermo, R. Caputo and A. De Luca.
5. (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.
6. (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. Bürgi, C. Umeton, and De Luca A.
7. (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.
8. (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. Lévêque, P.-M. Adam and T. Maurer.
9. (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.
10. (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
11. (2015) [Nanospectroscopy](#) **1**, **1**, 40, "Liquid Crystals as Active Medium: Novel Possibilities in Plasmonics"
R. Caputo, G. Palermo, M. Infusino and L. De Sio
12. (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
13. (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
14. (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
15. (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.
16. (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.
17. (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.

18. (2011) *J. Mat. Chem.*, **21**, *47*, 18967, "Broad band tuning of the plasmonic resonance of Gold nanoparticles hosted in self-organized soft materials",
L. De Sio, R. Caputo, U. Cataldi and C. Umeton.

Ordered Plasmonic Systems

19. (2020) *J. Phys. Chem. C (in preparazione)* "Lattice Plasmon Modes in 2D Arrays of Au Nano-Antennas: Influence of Periodicity, Excitation Angle and Wavelength"
J. Marae-Djouda, R. Caputo, G. Lévêque, P.-M. Adam and T. Maurer
20. (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
21. (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. Akjouj
22. (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

Organic and Biocompatible Photonic Devices

23. (2020) *Physica Status Solidi (a) (sottomesso)* "Conceptual Implementation of a Photonic-Plasmonic Transistor into a structured Nano-guided Hybrid System"
G.E. Lio and R. Caputo
24. (2019) *J. Phys. Chem. C* **123**, *23*, 14669 "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
25. (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.
26. (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
27. (2010) *Opt. Exp.*, **18**, *14*, 15236, "Holographic Grating Based High Sensitivity Device for Refractive Index Measurements",
D. Donisi, R. Caputo, G. Cennini. Paper selected for the publication on: Virtual Journal for Biomedical Optics, **5**, 11 (2010).

Terahertz Devices

28. (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
29. (2017) *Phot. Lett. Poland* **9**, *1*, 2, "Terahertz polarizing components on cyclo-olefin polymer"
A. Ferraro, D. Zografopoulos, R. Caputo and R. Beccherelli
30. (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
31. (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
32. (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
33. (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

Displays and Lighting Technology

34. (2019) *Liquid Crystals*, **1**, *12* "Investigations of dual-frequency nematic liquid crystals doped with dichroic dye"
A. Pianelli, J. Parka, P. Perkowski, R. Caputo, E. Otón, M. Mrukiewicz, R. Mazur, K. Sielezin & K. Garbat,
35. (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
36. (2007) *Opt. Exp.* **15**, 10540 "Short Period 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.
 37. (2008) *Journal of SID* **16**, 803, "Colour-Separating Backlight for Improved LCD Efficiency", M.J.J. Jak, R. Caputo, E.J. Hornix, L. de Sio, D.K.G. de Boer, H.J. Cornelissen.
 38. (2008) *Opt. Exp.* **16**, 19, 14532, "Characterization of the diffraction efficiency of polymer-liquid-crystal-polymer-slices gratings at normal and conical incidence", M. Xu, L. De Sio, R. Caputo, C.P. Umeton, A.J.H. Wachters, H.P. Urbach and D.K.G. de Boer.

Organic Lasing and Band-gap Materials

39. (2009) *J. Nonlin. Opt. Phys. & Mat.*, **18**, 3, 349, "Laser action in dye doped liquid crystals: from periodic structures to random media", A. De Luca, V. Barna, S. Ferjani, R. Caputo, C. Versace, N. Scaramuzza, R. Bartolino, C. Umeton, G. Strangi.
40. (2006) *Opt. Exp.* **14**, 2695, "Distributed feedback micro-laser array: helixed liquid crystals embedded in holographically sculptured polymeric microcavities", V. Barna, R. Caputo, A. De Luca, N. Scaramuzza, G. Strangi, C. Versace, C. Umeton, R. Bartolino.
41. (2005) *App. Phys. Lett.* **87**, 221108, "Band Edge and Defect-Modes Lasing Due to Confinement of Helixed Liquid Crystals in Cylindrical Microcavities", V. Barna, S. Ferjani, A. De Luca, R. Caputo, N. Scaramuzza, C. Versace, G. Strangi.
42. (2005) *Phys. Rev. Lett.* **94**, 063903, "Color-tunable organic microcavity laser using distributed feedback", G. Strangi, V. Barna, R. Caputo, A. de Luca, C. Versace, N. Scaramuzza, C. Umeton and R. Bartolino. Paper selected for the publication on: *Virt. J. of Nano Sci.* **11**, 8 (2005).

POLICRYPS and related applications

43. (2019) *Nanoscale* **11**, 17931 "Plasmon-mediated Discrete Diffraction Behaviour of an Array of Responsive Waveguides" L. Pezzi, L. De Sio, A. Veltri, A. Cunningham, A. De Luca, T. Buergi, G. Assanto, C. Umeton, R. Caputo
44. (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
45. (2017) *Phot. Lett. Poland* **9**, 1, 5, "Recording Policryps 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
46. (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.
47. (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
48. (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
49. (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.
50. (2011) *Mol. Cryst. Liq. Cryst.*, **549**, 1, 29, "Phase Modulator Behaviour of a Wedge-shaped POLICRYPS Diffraction Grating", R. Caputo, I. Trebisacce, L. De Sio and C. Umeton.
51. (2012) *Mol. Cryst. Liq. Cryst.* **558**, 1, 46, "Molecular Orientation of E7 Liquid Crystal in POLICRYPS Holographic Gratings: A Micro-Raman Spectroscopic Analysis", A. Fasanella, M. Castriota, E. Cazzanelli, L. De Sio, R. Caputo and C. Umeton
52. (2011) *Opt. Exp.*, **19**, 11, 10494, "In situ polarized micro-Raman investigation of periodic structures realized in liquid-crystalline composite materials", M. Castriota, A. Fasanella, E. Cazzanelli, L. De Sio, R. Caputo and C. Umeton.
53. (2012) *J. Opt. Soc. Am. B* **29**, 11, 3170, "POLICRYPS Visible Curing for Spatial Light Modulator Based Holography" M. Infusino, A. Ferraro, A. De Luca, R. Caputo and C. Umeton.
54. (2012) *Opt. Exp.* **20**, 21, 23138, "Periodic and Aperiodic POLICRYPS Structures Realized Via Spatial Light Modulator Direct Holography" M. Infusino, A. De Luca, V. Barna, R. Caputo and C. Umeton.

55. (2010) *Opt. Exp.*, **18**, **6**, 5776, "Jones matrix analysis of dichroic phase retarders realized in soft matter composite materials",
R. Caputo, I. Trebisacce, L. De Sio, C. Umeton.
56. (2009) *J. Opt. A: Pure Appl. Opt.* **11**, **2**, 024017, "POLICRYPS: a liquid-crystalline composed nano/micro structure with a wide range of optical and electro-optical applications",
R. Caputo, A. De Luca, L. De Sio, L. Pezzi, G. Strangi, C. Umeton, A. Veltri, R. Asquini, A. d'Alessandro, D. Donisi, R. Beccherelli, A.V. Sukhov and N.V. Tabirian.
57. (2008) *App. Opt.* **47**, 1363, "Characterization of an Active Control System for Holographic Set-up Stabilization",
L. De Sio, A. Veltri, A. Tedesco, R. Caputo, A.V. Sukhov, C. Umeton.
58. (2008) *Opt. Exp.* **16**, **13**, 9254, "Tunable integrated optical filter made of a glass ion-exchanged waveguide and an electro-optic composite holographic grating",
A. d'Alessandro, D. Donisi, L. De Sio, R. Beccherelli, R. Asquini, R. Caputo, C. Umeton.
59. (2008) *Mol. Cryst. Liq. Cryst.*, **486**, 31/[1073], "Realization of an optical filter using POLICRYPS holographic gratings on glass waveguides",
D. Donisi, A. d'Alessandro, R. Asquini, R. Beccherelli, L. De Sio, R. Caputo, C. Umeton.
60. (2008) *Opt. Exp.* **16**, **11**, 7619, "POLICRYPS Structures as Switchable Optical Phase Modulators",
L. De Sio, N.V. Tabirian, R. Caputo, A. Veltri, C. Umeton.
61. (2006) *Mol. Cryst. Liq. Cryst.* **454**, 273 "Two - wave coupling during the formation of POLICRYPS diffraction gratings: Experimental results and theoretical model",
A. Veltri, R. Caputo, L. De Sio, C. Umeton, A.V. Sukhov.
62. (2006) *App. Opt.*, **45**, 3721 "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.
63. (2006) *J. Disp. Tech., IEEE/OSA* **2**, **38**, "POLICRYPS switchable holographic grating: a promising Grating Electro Optical Pixel for high resolution display application",
R. Caputo, L. De Sio, A. Veltri, C. Umeton.
64. (2005) *Opt. Lett.* **30**, 1840, "Observation of two-wave coupling during the formation of POLICRYPS diffraction gratings",
R. Caputo, L. De Sio, A. Veltri, A.V. Sukhov, C. Umeton.
65. (2005) *Mol. Cryst. Liq. Cryst.* **441**, 111, "Realization of POLICRYPS Gratings: Optical and Electro-Optical Properties",
R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton.
66. (2004) *Opt. Lett.* **29**, 1261, "Development of a new kind of holographic grating made of liquid crystal films separated by slices of polymeric material",
R. Caputo, L. De Sio, A.V. Sukhov, A. Veltri, C. Umeton.
67. (2004) *Opt. Lett.* **29**, 1405, "Electro optic properties of switchable gratings made of polymer and nematic liquid crystal slices",
R. Asquini, A. d'Alessandro, C. Gizzi, R. Caputo, A.V. Sukhov, C. Umeton, A. Veltri.
68. (2004) *J. Opt. Soc. Am. B*, **21**, 1939, "Characterization of the diffraction efficiency of new holographic gratings with a nematic film-polymer-slice sequence structure",
R. Caputo, A. Veltri, C. Umeton, A.V. Sukhov.
69. (2004) *Euro. Phys. J. E*, **15**, 47, "Dynamical Behaviour of Policryps Gratings", A. Marino, F. Vita, V. Tkachenko,
R. Caputo, C. Umeton, A. Veltri, G. Abbate.
70. (2003) *Mol. Cryst. Liq. Cryst.*, **398**, 223, "Optical characterization at wavelengths of 632.8 nm and 1549 nm of policryps switchable diffraction gratings",
R. Asquini, A. d'Alessandro, C. Gizzi, P. Maltese, R. Caputo, A. Veltri, C. Umeton, A.V. Sukhov.
71. (2001) *J. Exp. Th. Phys.*, **92**, **1**, 28, "Dynamics of Mass Transfer Caused by the Photoinduced Spatially Inhomogeneous Modulation of Mobility in a Multicomponent Medium",
R. Caputo, A.V. Sukhov, C. Umeton, R.F. Ushakov.
72. (2000) *J. Exp. Th. Phys.*, **91**, **6**, 1190, "Formation of a Grating of Submicron Nematic Layers by Photopolymerization of Nematic-Containing Mixtures",
R. Caputo, A.V. Sukhov, C. Umeton, R.F. Ushakov.
73. (2000) *Mol. Mat.*, **12**, 169, "Experimental studies of initial stage of PDLC curing caused by UV interference pattern",
R. Caputo, A.V. Sukhov, C. Umeton.

Modeling Soft Matter Composites

74. (2007) *Mol. Cryst. Liq. Cryst.* **465**, 187 "Theoretical characterization of the holographic recording of diffraction grating in multicomponent media", A. Veltri, R. Caputo, L. De Sio, C. Umeton, A.V. Sukhov.

75. (2005) *App. Phys. Lett.* **87**, 141108, "Model for two beam coupling during the formation of holographic gratings with a nematic film-polymer-slice sequence structure",
R. Caputo, L. De Sio, A. Veltri, A.V. Sukhov, C. Umeton.
76. (2005) *J. Opt. Soc. Am. B.* **22**, 735, "Kogelnik-like model for the diffraction efficiency of POLICRYPS gratings",
R. Caputo, A.V. Sukhov, A. Veltri, C. Umeton.
77. (2004) *Appl. Phys. Lett.*, **84**, 18, 3492, "Model for the photoinduced formation of diffraction gratings in liquid-crystalline composite materials",
A. Veltri, R. Caputo, A.V. Sukhov, C. Umeton.
78. (2002) *J. Nonlin. Opt. Phys. & Mat.*, **11** (1), 25, "Distinct Dynamic Regimes in a Material System with Optically Modulated Diffusivity"
R. Caputo, A.V. Sukhov, N.V. Tabyrian, C. Umeton.
79. (2002) *Mol. Cryst. Liq. Cryst.*, **372**, 263, "A New Kind of Photo-polymerisation Induced Diffusion in Liquid Crystalline Composite Materials",
R. Caputo, A.V. Sukhov, C. Umeton, R.F. Ushakov.
80. (2001) *Chem. Phys.*, **271**, 3, 323 "Mass Transfer Processes Induced by inhomogeneous photo-polymerisation in a multicomponent medium",
R. Caputo, A.V. Sukhov, N.V. Tabyrian, C. Umeton, R.F. Ushakov.
81. (1999) *Chem. Phys.*, **245**, 463, "Efficiency dynamics of diffraction gratings recorded in liquid crystalline composite materials by a UV interference pattern",
R. Caputo, A.V. Sukhov, N.V. Tabyrian, C. Umeton.

Peer-reviewed Conference Proceedings

82. (2016) 41st Int. Conf. Infrared, Millimeter, and Terahertz waves (IRMMW-THz), "Terahertz polarizer on flexible and conformal substrate", DOI: 10.1109/IRMMW-THz.2016.7758662
A. Ferraro, D. C. Zografopoulos, M. Missori, M. Peccianti, R. Caputo, R. Beccherelli.
83. (2016) 41st Int. Conf. Infrared, Millimeter, and Terahertz waves (IRMMW-THz), "Mechanically tunable Bragg filters for terahertz applications", DOI: 10.1109/IRMMW-THz.2016.7758661
A. Ferraro, D. C. Zografopoulos, M. Missori, M. Peccianti, R. Caputo, R. Beccherelli.
84. (2012) Asia Comm. And Phot. Conf., ACP2012, ATH3G.3, "Active plasmonics: From random to periodic",
C. Umeton, L. De Sio, R. Caputo, U. Cataldi and L. Pezzi.
85. (2012) Asia Comm. And Phot. Conf., ACP2012, AF4D.8, "Gold nanoparticles embedded in flexible materials: New frontiers in Plasmonics",
R. Caputo, U. Cataldi, A. Cunningham, L. De Sio, T. Bürgi and C. Umeton.
86. (2011) Proc. of SPIE 8145, DOI: 10.1117/12.892777, "Metallic subentities embedded in micro-periodic composite structure"
L. De Sio; R. Caputo; U. Cataldi; J. Dintinger; H. Sellame; T. Scharf; C. Umeton
87. (2011) Proc. of SPIE, Vol. 8114, DOI: 10.1117/12.892781, "Universal soft matter template: from photonic to metamaterial applications
C. Umeton; L. De Sio; R. Caputo; S. Ferjani, G. Strangi, and R. Bartolino
88. (2007) Proc. IEEE/LEOS I, 660, "Low driving power integrated tuneable filter using composite holographic grating on glass waveguides",
D. Donisi, A. d'Alessandro, R. Asquini, R. Beccherelli, L. De Sio, R. Caputo and C. Umeton.
89. (2007) Proc. CLEO/EUROPE (2007), "Novel tuneable optical filter made of a polymer and liquid crystal holographic grating on glass waveguides",
D. Donisi, A. d'Alessandro, R. Asquini, R. Beccherelli, L. De Sio, R. Caputo and C. Umeton.
90. (2007) Proc. of Eurodisplay, S10-2, "Colour Separating Backlight for Improved LCD Efficiency",
M.J.J. Jak, R. Caputo, E.J. Hornix, L. de Sio, D.K.G. de Boer, H.J. Cornelissen.
91. (2007) Proc. of Asia Display (SID), 1, 1011, "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.
92. (2006) Proc. of SPIE, 6196, 241, "Diffractive grating structures for colour-separating backlights",
D.K.G. de Boer, R. Caputo, H.J. Cornelissen, C.M. van Heesch, E.J. Hornix, M.J.J. Jak.
93. (2004) LFN2004 Conference paper, 228, "Dynamical behaviour of holographic polymer-liquid crystal gratings",
A. Marino, F. Vita, F. V. Tkachenko, R. Caputo, C. Umeton, A. Veltri, G. Abbate.
94. (2003) Proc. IEEE/LEOS I, 183, "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, A. Veltri, C. Umeton.

Brevetti internazionali

1. G. Cennini, R. Caputo, Pijlman, F. Onac, G.E., Cornelissen, H.J., Stroemer, J.F., "Controllable light-guide and display device", EU Patent EP 07106305.1 (WO/2008/125926, November 6th, 2007).
2. A. D'Alessandro, R. Beccherelli, C. Umeton, R. Asquini, D. Donisi, L. De Sio, R. Caputo, "Tuneable electro-optical filter and its realization process", US Patent 7,925,124 B2 (April 12nd 2011).
3. L. De Sio, A. Veltri, R. Caputo, A.V. Sukhov, A. de Luca, C. Umeton, "Local control and stabilization system of a device for holographic gratings writing", WO Patent WO/2007/096,932 (August 30th, 2008).
4. R. Caputo, C. Umeton, A. Veltri, A.V. Sukhov and N.V. Tabiryany, "Realization of regular layered structures made of thin liquid crystal films separated by slides of polymeric material (POLICRYPS)", European patent 1,649,318 A2 (WO 2005/006065 A2, January 25th, 2005).

Capitoli di libri

5. (2015) "Plasmonic coupling between nanostructures: from periodic rigid systems to random flexible devices". In: De Sio Ed. "Active Plasmonic Nanomaterials", Panstanford.
U. Cataldi, R. Caputo, Y. Kurylyak, G. Klein, M. Chekini, C. Umeton and T. Bürgi
6. (2015) "Liquid Crystals Order in Polymeric Microchannels". In: Thakur, V.K. Ed. "Liquid Crystalline Polymers: Processing and Applications", (Chapter 1), Springer.
G. Palermo, L. De Sio, R. Caputo, C. Umeton and R. Bartolino
7. (2015) "POLICRYPS: A Multipurpose, Application-Oriented Platform". In: Tiwari, A and Polykarpov, A Ed. "Photocured Materials", (Chapter 11) Royal Society of Chemistry.
R. Caputo, M. Infusino, A. Veltri, L. De Sio, A.V. Sukhov and C. Umeton
8. (2015) "Inhomogeneous Photopolymerization in Multicomponent Media", In: Tiwari, A and Polykarpov, A Ed. "Photocured Materials", (Chapter 5) Royal Society of Chemistry
A. Veltri, A.V. Sukhov, R. Caputo, L. De Sio, M. Infusino and C. Umeton
9. (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
10. (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. Tabiryany and C.P. Umeton

Contributi a conference

- o [21 presentazioni orali su invito](#) a conference o simposi internazionali (presenting author) in un totale di più di [60 presentazioni orali o poster](#)

(2019) EMN Open Access Week 2019, Chengdu, China

Invited: "Active Plasmonics as a Route to the Realization of Disruptive Crypto-physical, Plasco-mechanical and Biomedical Systems"

[R. Caputo](#)

(2019) PIERS 2019, 41st Photonics and Electromagnetics Research Symposium, Rome, Italy

Invited: "Switching Thermo-plasmonic Behavior of Au Nanoparticles in Presence of an Optically Tunable Organic Layer"

G. Palermo, A. Guglielmelli, U. Cataldi, T. Bürgi, L. De Sio, N.V. Tabiryany, C.P. Umeton and [R. Caputo](#)

(2019) META19, 10th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Lisbon, Portugal

Invited: "Opto-mechanical control of the plasmonic heat generation towards the realization of smart biochips"

[R. Caputo](#), G. Palermo, G.E. Lio and A. De Luca

(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. Tabiryany, 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) META18, 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. Tabiryian 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) PIERS 2013, 34th Progress In Electromagnetics Research Symposium, 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) META13, 4th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Sharjah, UAE
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 polycrystalline 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: "Diffractive 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: "Diffractive 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: "Diffractive 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

Altre attività

Nov. 2005	Partecipazione al corso intensivo di "Personal development" dal titolo: "High impact presentations"	Philips Research Europe, Eindhoven, The Netherlands
-----------	---	---

Oct. 2005	Partecipazione al corso intensivo di "Personal development" dal titolo: "Intercultural awareness"	Philips Research Europe, Eindhoven, The Netherlands
May 2004	Vincitore del progetto ORACOLO "Sostegno alla creazione d'impresa e alla diffusione della cultura imprenditoriale nelle discipline tecnico scientifiche", azione ORU-05 con la proposta imprenditoriale: "Sviluppo di dispositivi elettro-ottici ad alto contenuto tecnologico"	University of Calabria
Oct. 2003 – Apr. 2004	Vincitore del progetto ORACOLO "Sostegno alla creazione d'impresa e alla diffusione della cultura imprenditoriale nelle discipline tecnico scientifiche", azione ORU-05 con la proposta imprenditoriale: "Sviluppo di dispositivi elettro-ottici ad alto contenuto tecnologico"	University of Calabria

Partecipazione a comitati internazionali

- o Membro di panel internazionali di valutatori di proposal a finanziamento pubblico:
Valutatore per il [Ministero dell'istruzione, dell'università e della ricerca \(MIUR\)](#), Italia dal 2014;
Valutatore per il [National Science Center \(NAWA\)](#), Polonia dal 2015;
Valutatore per il [National Research, Development and Innovation Office \(NKFI\)](#), Ungheria dal 2018.
- o Membro del Comitato Organizzatore di conference internazionali e meetings fra i quali: [NOMA](#) (Novel Optical Materials & Applications) and [NANOPLASM](#) (New Frontiers in Plasmonics and NanoOptics)
- o Referee per 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.)

Lingue conosciute

- o Italiano - madrelingua
- o Inglese - fluente
- o Francese - livello intermedio
- o Olandese - conoscenza di base (A2+ level, STE Studiecentrum Talen Eindhoven)
- o Tedesco - conoscenza di base
- o Ucraino - conoscenza di base

References

Prof. Alexander Govorov
Dept. Physics and Astronomy
Ohio University
Clippinger Research Labs
Athens, OH 45701 (USA)
(740)-593-9430
govorov@ohio.edu

Prof. Renaud Bachelot
Lab of Nanotec, Inst. and Opt.
(LNIO)
University of Technology of
Troyes,
10004 Troyes, (France)
+33 3 25 71 56 65
renaud.bachelot@utt.fr

Prof. Carsten Rockstuhl
Institut für Theoretische
Festkörperphysik
Karlsruher Institut für Technologie
(Universität)
D-76128 Karlsruhe (Germany)
carsten.rockstuhl@kit.edu

Data 29/01/2020

Il Dichiarante  ROBERTO CAPUTO