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Decreto Rettore Università di Roma “La Sapienza” n 2510/2019 del del 7/08/2019

## Luciano De Sio Curriculum Vitae

██████████  
Date 05/10/2019

### Part I – General Information

Full Name	██████████
Date of Birth	██████████
Place of Birth	██████████
Citizenship	██████████
Permanent Address	██
Mobile Phone Number	██████████
E-mail	██████████████████
Spoken Languages	██████████

### Part II – Education

Type	Year	Institution	Notes (Degree, Experience,...)
University graduation	2003	Department of Physics, University of Calabria	MS Physics; Dissertation Title: Two-wave coupling during the formation of composite diffraction gratings. Advisor: Prof. Cesare Umeton
PhD	2006	Department of Physics, University of Calabria	PhD in Science and Technologies of Mesophases and Molecular Materials. Dissertation Title: “ <i>Periodic Structure in composite materials for Photonics Applications</i> ” Advisor: Prof. Cesare Umeton
Specialty			
Pre-doctorate training	03/2006- 08/2006	Philips Research, Eindhoven (NL)	Internship: Realization of periodic structures for colour separating backlights. Advisor: Dr. Ugo H. Cornelissen

### Part III – Appointments

#### IIIA – Academic Appointments

Start	End	Institution	Position
01-08-2007	30-09-2008	Department of Physics, University of Calabria	Post-Doctoral Scholar. Advisor: Prof. Cesare Umeton
01-10-2008	30-09-2009	École Polytechnique Fédérale de Lausanne (EPFL)	Senior Post-Doctoral Scholar. Advisor: Prof. Demetri Psaltis
01-10-2009	31-07-2010	Department of Physics, University of Calabria	Post-Doctoral Scholar. Advisor: Prof. Cesare Umeton
16-10-2017	Today	Department of Medico-surgical Sciences and Biotechnologies (Sapienza University of Rome)	Assistant Professor (RTDA)

#### IIIB – Other Appointments

Start	End	Institution	Position
01-01-2007	31-07-2007	University of Roma 3	Scientific collaborator. Advisor Prof. Gaetano Assanto
01-06-2008	30-06-2008	Beam Engineering for Advanced Measurements (USA)	Visiting Scientist
01-08-2010	31-07-2012	Department of Physics, University of Calabria	Senior Scientist (NANOGOLD, Framework, Programme 7 project funded by the European Commission)
01-08-2012	30-09-2012	Beam Engineering for Advanced Measurements (USA)	Visiting Scientist
01-04-2013	30-09-2017	Beam Engineering for Advanced Measurements (USA)	Senior Optical Scientist
05-05-2019	16-05-2019	Institute of Fundamental Technological Research (Warsaw)	Visiting Professor

### Part IV – Teaching experience

Year	Institution	Course
2004	Department of Electronic Engineering, University of Calabria	Project of Optoelectronics (Teaching assistant)
2008	Department of Electronic Engineering, University of Calabria	Project of Optoelectronics (Teaching assistant)
2009	Department of Electronic Engineering, University of Calabria	Project of Optoelectronics (Teaching assistant)
2010	Department of Electronic Engineering, University of Calabria	Project of Optoelectronics (Teaching assistant)
2004	Department of Electronic Engineering, University of Calabria	Photonic Technologies (Teaching assistant)
2008	Department of Electronic Engineering, University of Calabria	Photonic Technologies (Teaching assistant)
2009	Department of Electronic Engineering, University of Calabria	Photonic Technologies (Teaching assistant)

	Engineering, University of Calabria	
2010	Department of Electronic Engineering, University of Calabria	Photonic Technologies (Teaching assistant)
2004	Department of Physics, University of Calabria	Introduction in Experimental Method in Physics (Teaching assistant)
2008	Department of Physics, University of Calabria	Introduction in Experimental Method in Physics (Teaching assistant)
2004	Department of Physics, University of Calabria	Physics of Matter (Teaching assistant)
2006	Department of Physics, University of Calabria	Physics of Matter (Teaching assistant)
2009	Department of Physics, University of Calabria	Mechanics and Thermodynamics (Teaching assistant)
2010	Department of Physics, University of Calabria	Mechanics and Thermodynamics (Teaching assistant)
2010	Department of Electronic Engineering, University of Calabria	Photonic Technologies (Teacher)
2011	Department of Electronic Engineering, University of Calabria	Photonic Technologies (Teacher)
2017	International Medical School (degree program in Medicine and Surgery "F"), Sapienza University of Rome	Medical Physics (Teaching assistant)
2018	International Medical School (degree program in Medicine and Surgery "F"), Sapienza University of Rome	Medical Physics (Teacher)
2019	International Medical School (degree program in Medicine and Surgery "F"), Sapienza University of Rome	Medical Physics (Teacher)
2017	Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome	Physics and electrical measurements (Bachelors: Orthopaedics techniques)-Teacher
2018	Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome	Physics and electrical measurements (Bachelors: Orthopaedics techniques)-Teacher
2019	Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome	Physics and electrical measurements (Bachelors: Orthopaedics techniques)-Teacher
2018	Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome	Physics and electrical measurements (Bachelors: Biomedical Laboratory techniques) -Teacher
2019	Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome	Physics and electrical measurements (Bachelors: Biomedical Laboratory techniques) -Teacher
2018	Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome	Medical Physics (Medicine and Surgery "E") -Teacher
2019	Department of Medico-Surgical Sciences and Biotechnologies,	Medical Physics (Medicine and Surgery "E") -Teacher

2019	Sapienza University of Rome	Medical Physics - Specialty School in Physical Medicine and Rehabilitation. Teacher
2019	Sapienza University of Rome	
2019	Department of Physics, University of Calabria	<b>Member of the Ph.D committee (Phd Program in Physical, Chemical And Materials Sciences And Technologies)</b>

## Part V - Society memberships, Awards and Honors

Year	Title
2011	L. De Sio , S. Ferjani, G. Strangi, C. Umeton and R Bartolino “Universal Soft Matter Template For Photonic Applications” Soft Matter 7, 3739-3743 (2011). <b>Paper selected in the top five hot-articles.</b>
2011	L. De Sio , R Caputo , U. Cataldi , C. Umeton , " 'Broad band tuning of the plasmonic resonance of Gold nanoparticles hosted in self-organized soft materials". J. Mater. Chem., 21, 18967 (2011). <b>Paper selected in the top five hot-articles.</b>
2013	L. De Sio, T. Placido, S. Serak, R. Comparelli, M. Tamborra, N. Tabiryan, L. Curri, R. Bartolino, C. Umeton, T. Bunning “Nano-Localized Heating Source for Photonics and Plasmonics” Advanced Optical Materials 2013, 1(12), 992 Paper include also the back cover picture of the journal. <b>Paper has been included in 12 outstanding articles published in Advanced Optical Materials in 2013</b>
2014	L. De Sio, V. Caligiuri, C. Umeton “Tunable broadband optical filter based on soft-composite materials” J. Opt. 2014, 16, 065703. <b>The article has been chosen by the journal editors for its novelty, significance and potential impact on future research.</b>
2015	Active Plasmonic Nanomaterials. Pan Stanford Publishing, Singapore, 2015 (ISBN: 9789814613002) edit by L. De Sio. <b>The book has been highlighted in Nature Photonics</b>
2015	L. De Sio, T. Placido, R. Comparelli, L. Curri, M. Striccoli, N. Tabiryan, T. Bunning “Next-generation thermo-plasmonic technologies and plasmonic nanoparticles in optoelectronics” Progress in Quantum Electronics 2015, 41, 23–70. <b>The paper has been included in the Virtual Special Issue on the International Year of Light (Second Edition)</b>
2015	L. De Sio, F. Annesi, T. Placido, R. Comparelli, V. Bruno, A. Pane, G. Palermo, L. Curri, C. Umeton, R. Bartolino “Templating gold nanorods with liquid crystalline DNA” J. Opt. 2015, 17, 025001. <b>Research highlights 2015 (IOP LabTalk).</b>
2018	L. De Sio, U. Cataldi, A. Guglielmelli, T. Buergi, N. Tabiryan, T. J. Bunning “Dynamic optical properties of gold nanoparticles/cholesteric liquid crystal arrays” MRS Communications 2018, 8(2), 550. <b>Paper selected for the 2019 MRS Communications Award</b>
2018	Associate member of CNR-Nanotec ( <b>Typology: A</b> ) -National Research Council (Italy)
2019	Member of the Board Directors: <b>Center for Biophotonics</b> , Interdepartmental Center – Sapienza University of Rome

## Part VI – Competitive Funding Information [grants as PI-principal investigator or I-investigator]

Year	Title	Program	Grant value
2009-2012	Self- Organized Nanomaterials for tailored optical and electrical properties” <i>NANOGOLD</i> . Role: Investigator	Framework Programme - FP7-NMP-2008-SMALL-2	€ 400.000
2012-2013	Photo- and Electro - Switchable 1/2D Diffractive Structures Exploiting Soft-Matter. Role:	European Office for Aerospace Research and Development	\$ 54.000

	<b>Principal Investigator</b>	(FA8655-12-1-0003)	
2014-2015	Smart mirrors in layered soft composite materials. <b>Principal Investigator</b>	European Office for Aerospace Research and Development (FA8655-12-1-0004)	\$ 60.000
2017-2020	Thermo-plasmonics in self-organized materials. Role: <b>Principal Investigator</b>	European Office for Aerospace Research and Development (FA9550-18-1-0038)	\$ 131.400
2018-2020	International collaboration on complex systems and modern technologies. Role: <b>Work Package Leader</b>	European Project supported by the NAWA (Polish National Agency for Academic Exchange). Grant no. PPI/APM/2018/1/00045/U/001.	\$ 600.000
2019-2020	Plasmonic photo-thermal ablation of cancer cells with radiopharmaceutical labeled gold nanoparticles. Role: <b>Principal Investigator</b>	National Project supported by Sapienza University of Rome. grant n° RM11816431206A2C	\$ 10.000

## Part VII – Research Activities

### Keywords

Plasmonic nanomaterials
Nanomedicine
Liquid Crystals
Optics
Thermo-plasmonics

### Brief Description

Today I'm working as an assistant Professor at the Department of Medico-surgical Sciences and Biotechnologies (Sapienza University of Rome). My Department aggregates academics of the Faculty of Pharmacy and Medicine and belonging to scientific areas related to diagnostics, medicine, surgery and medical physics. By virtues of the integration of exiting research programs in basic and applied sciences, my research activity is strongly linked to the fields of biotechnologies, biosensing, early-diagnosis techniques and nanomedicine. To this end, I'm developing innovative devices based on nanoscale structures such as photonic crystals, colloidal nanoparticles and thermo-plasmonic platforms. Particularly, I'm studying liquid crystal driven nanophotonic sensors by developing a new generation of lab-on-chip medical devices useful for early diagnosis and fast detection of several diseases such as HIV and malaria. Another interesting project I'm working with is based on the possibility to bridge nanotechnology and nuclear medicine, hence opening a new avenue in the field of oncology and cancer treatments. By exploiting the unique optical and thermal properties of plasmonic NPs capped with sugar-based materials and functionalized with radiopharmaceutical drugs, I'm advancing a new breakthrough in the realization of a novel and powerful weapon in the fight against cancer.

## Part VIII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Papers [international]	103	Scopus	2004	2019
Papers [national]	0		2004	2019
Books [scientific]	11	Scopus	2004	2019
Books [teaching]	0		2004	2019

Total Impact factor	302.7
Total Citations	1383
Average Citations per Product	12.13
Hirsch (H) index	22
Normalized H index*	1.46

\*H index divided by the academic seniority.

## Part IX– Selected Publications

List of the publications selected for the evaluation. For each publication report title, authors, reference data, journal IF (if applicable), citations, press/media release (if any).

- 1) **L. De Sio**<sup>\*</sup>, S. Serak , N. Tabiryman, S. Ferjani, A. Veltri, C. Umeton 'Composite holographic gratings containing light responsive liquid crystals for visible bichromatic switching ' *Adv. Mater.*, **22**, 2316-2319, 2010. (IF 2018: **25.80**; Citations: **49**). \*L. De Sio is the corresponding author. Press/media release: <http://www.nanowerk.com/spotlight/spotid=24817.php>
- 2) J. G. Cuennet, A. E. Vasdekis, **L. De Sio** and D. Psaltis “Optofluidic modulator based on peristaltic nematogen microflows “ *Nature Photonics*, **5**, 234-238(2011). (IF 2018: **31.58**; Citations: **81**). Press/media release: <https://actu.epfl.ch/news/epfl-reinvents-the-liquid-crystal-display/>
- 3) **L. De Sio**<sup>\*</sup>, S. Ferjani, G. Strangi, C. Umeton and R Bartolino “Universal Soft Matter Template For Photonic Applications” *Soft Matter* **7**, 3739-3743 (2011) **paper selected in the top five hot-articles**. (IF 2018: **3.39**; Citations: **31**). \*L. De Sio is the corresponding author. Press/media release: <https://blogs.rsc.org/sm/2011/03/23/hot-article-universal-soft-matter-template-for-photonic-applications/>
- 4) **L. De Sio**, R Caputo, U. Cataldi , C. Umeton , " Broad band tuning of the plasmonic resonance of Gold nanoparticles hosted in self-organized soft materials". *J. Mater. Chem.*, **21**, 18967 (2011) **paper selected in the top five hot-articles**. (IF 2018: **6.62**; Citations: **29**). \*L. De Sio is the corresponding author. Press/media release: <https://blogs.rsc.org/jm/2012/01/06/hot-article-soft-matter-meets-plasmonics-%E2%80%93-broad-band-tuning-of-the-plasmonic-resonance-of-gold-nanoparticles/>
- 5) **\*L. De Sio** , A. Cunningham , V. Verrina , C. M. Tone , R. Caputo , T. Buergi, C. Umeton “Double active control of the plasmonic resonance of a gold nanoparticle array” *Nanoscale* 2012, **4**, 7619-7623. (IF 2018: **6.97**; Citations: **31**). \*L. De Sio is the corresponding author. Press/media release: <https://www.nanowerk.com/spotlight/spotid=27056.php>
- 6) **\*L. De Sio**, M. Romito, M. Giocondo, A. E. Vasdekis, A. De Luca, C. Umeton “Electro switchable polydimethylsiloxane based optofluidics” *Lab on a Chip*, 2012, **12**, 3760-3765. (IF 2018: **6.91**; Citations: **10**). \*L. De Sio is the corresponding author.

- 7) \***L. De Sio**, P. D'Aquila, E. Brunelli, G. Strangi, G. Passarino, C. Umeton, R. Bartolino "Direct organization of DNA filaments in a soft matter template" *Langmuir*, **2013** 29 (10) 3398-3403. (IF 2018: **3.68**; Citations: **11**). \*L. De Sio is the corresponding author. Press/media release: <http://www.nanowerk.com/spotlight/spotid=29694.php>
- 8) \***L. De Sio**, G. Klein, S. Serak, N. Tabiryan, A. Cunningham, C. M. Tone, F. Ciuchi, T. Bürgi, C. Umeton, T. Bunning "All-optical control of localized plasmonic resonance realized by photoalignment of liquid crystals" *J. Mater. Chem. C*, **2013**, 1 (45), 7483 – 7487. (IF 2018: **6.64**; Citations: **24**). \*L. De Sio is the corresponding author.
- 9) \***L. De Sio**, T. Placido, S. Serak, R. Comparelli, M. Tamborra, N. Tabiryan, L. Curri, R. Bartolino, C. Umeton, T. Bunning "Nano-Localized Heating Source for Photonics and Plasmonics" *Advanced Optical Materials* **2013**, 1(12), 899-904 **Paper include also the back cover picture of the journal. Paper has been included in 12 outstanding articles published in Advanced Optical Materials in 2013.** (IF 2018: **7.12**; Citations: **33**). \*L. De Sio is the corresponding author. Press/media release: <https://www.advancedsciencenews.com/best-of-advanced-optical-materials-2013/>; <https://www.nanowerk.com/spotlight/spotid=32606.php>
- 10) L. Pezzi, **L. De Sio**, A. Veltri, T. Placido, G. Palermo, R. Comparelli, M. L. Curri, A. Agostiano, N. Tabiryan, C. Umeton "Photo-thermal effects in gold nanoparticles dispersed in thermotropic nematic liquid crystals" *Physical Chemistry Chemical Physics* 2015, 17, 20281-20287. (IF 2018: **3.56**; Citations: **21**).
- 11) \***L. De Sio**, F. Annesi, T. Placido, R. Comparelli, V. Bruno, A. Pane, G. Palermo, L. Curri, C. Umeton, R. Bartolino "Templating gold nanorods with liquid crystalline DNA" *J. Opt.* 2015, 17, 025001. Research highlights 2015 (IOP LabTalk). (IF 2018: **2.75**; Citations: **5**). \*L. De Sio is the corresponding author.
- 12) **L. De Sio**, T. Placido, R. Comparelli, L. Curri, M. Striccoli, N. Tabiryan, T. Bunning "Next-generation thermo-plasmonic technologies and plasmonic nanoparticles in optoelectronics" *Progress in Quantum Electronics* 2015, 41, 23–70. **The paper has been included in the Virtual Special Issue on the International Year of Light (Second Edition).** (IF 2018: **5.10**; Citations: **26**). \*L. De Sio is the corresponding author. Press/media release: <https://www.journals.elsevier.com/life-sciences-in-space-research/article-collections/virtual-special-issue-on-the-international-year-of-light-sec>
- 13) **L. De Sio**, G. Caracciolo, F. Annesi, T. Placido, D. Pozzi, R. Comparelli, A. Pane, M. L. Curri, A. Agostiano, R. Bartolino "Plasmonics Meets Biology through Optics" *Nanomaterials* 2015, 5(2), 1022-1033. (IF 2018: **4.03**; Citations: **1**). \*L. De Sio is the corresponding author.
- 14) \***L. De Sio**, D. E. Roberts, Z. Liao, S. Nersisyan, O. Uskova, L. Wickboldt, N. Tabiryan, D. M. Steeves, and B. R. Kimball "Digital polarization holography advancing geometrical phase optics" *Optics Express* **2016**, 24(16), 18297-18306. (IF 2018: **3.56**; Citations: **33**). \*L. De Sio is the corresponding author.

- 15) \***L. De Sio**, P.F. Lloyd, N. V. Tabiryan, T.J. Bunning “Hidden gratings in holographic liquid crystal polymer dispersed liquid crystals” *ACS Appl. Mater. Interfaces*, **2018**, *10* (15), 13107–13112. (IF 2018: **8.45**; Citations: 14). \*L. De Sio is the corresponding author.
- 16) \***L. De Sio**, U. Cataldi, A. Guglielmelli, T. Buergi, N. Tabiryan, T. J. Bunning “Dynamic optical properties of gold nanoparticles/cholesteric liquid crystal arrays” *MRS Communications* **2018**, *8*(2), 550. **Paper selected for the 2019 MRS Communications Award**. (IF 2018: **1.93**; Citations: 2). \*L. De Sio is the corresponding author. Press/media release: <https://www.cambridge.org/core/journals/mrs-communications/information/mrs-communications-lecture>
- 17) F. Pierini, P. Nakielski, O. Urbanek, S. Pawłowska, M. Lanzi, **L. De Sio** and T. A. Kowalewski “Polymer-Based Nanomaterials for Photothermal Therapy: From Light-Responsive to Multifunctional Nanoplatfoms for Synergistically Combined Technologies” *Biomacromolecules* **2018**, *19* (11), 4147. (IF 2018: **5.66**; Citations: 8).
- 18) **L. De Sio**, D.E. Roberts, Z. Liao, J. Hwang, N. Tabiryan, D.M. Steeves and B. R. Kimball “Beam shaping diffractive waveplates” *Applied Optics* **2018**, *57*, A118. (IF 2018: **1.97**; Citations: 20). \*L. De Sio is the corresponding author.
- 19) L. Pezzi, A. Pane, F. Annesi , M. A. Losso , A. Guglielmelli, C. Umeton, and \***L. De Sio** Antimicrobial Effects of Chemically Functionalized and/or Photo-Heated Nanoparticles *Materials* **2019**, *12*(7), 1078. (IF 2018: **2.97**; Citations: 0). \*L. De Sio is the corresponding author.
- 20) F. Annesi, A. Pane, M. A. Losso, A. Guglielmelli , F. Lucente, F. Petronella, T. Placido, R. Comparelli, M. G. Guzzo, M. L. Curri, R. Bartolino and \***L. De Sio** “Thermo-plasmonic killing of *Escherichia Coli TGI* bacteria” *Materials* **2019**, *12*(9), 1530. (IF 2018: **2.97**; Citations: 1). \*L. De Sio is the corresponding author.

## Part X– Patents

- 1) Stephen R. Beaton, **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, James Daniel Riall, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova “Variable optic ophthalmic device including liquid crystal elements” USA Patent: 10386653, Date of Patent: August 20, 2019. Assignee: Johnson & Johnson Vision Care, Inc.
- 2) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall” Methods and apparatus for ophthalmic devices including cycloidally oriented liquid crystal layers”. USA Patent: 9958704 Date of Patent: May 01, 2018. Assignee: Johnson & Johnson Vision Care, Inc.
- 3) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, James Daniel Riall, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova” Method and apparatus for ophthalmic devices including gradient-indexed liquid crystal layers and shaped dielectric layers” USA Patent: 9869885 Date of Patent: January 16, 2018. Assignee: Johnson & Johnson Vision Care, Inc.
- 4) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall” Methods and apparatus for



- ophthalmic devices including cycloidally oriented liquid crystal layers". USA Patent: 982491 Date of Patent: November 21, 2017. Assignee: Johnson & Johnson Vision Care, Inc.
- 5) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall" Methods and apparatus for ophthalmic devices including cycloidally oriented liquid crystal layers". USA Patent: 982491 Date of Patent: November 21, 2017. Assignee: Johnson & Johnson Vision Care, Inc.
- 6) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall" Methods and apparatus for ophthalmic devices including cycloidally oriented liquid crystal layers". USA Patent: 982490 Date of Patent: November 21, 2017. Assignee: Johnson & Johnson Vision Care, Inc.
- 7) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall" Methods and apparatus for ophthalmic devices including cycloidally oriented liquid crystal layers". USA Patent: 9817245 Date of Patent: November 14, 2017. Assignee: Johnson & Johnson Vision Care, Inc.
- 8) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall" Methods and apparatus for ophthalmic devices including cycloidally oriented liquid crystal layers". USA Patent: 9817244 Date of Patent: November 14, 2017. Assignee: Johnson & Johnson Vision Care, Inc.
- 9) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall" Methods and apparatus for ophthalmic devices including cycloidally oriented liquid crystal layers". USA Patent: 9784993 Date of Patent: October 10, 2017. Assignee: Johnson & Johnson Vision Care, Inc.
- 10) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall" Methods and apparatus for ophthalmic devices including cycloidally oriented liquid crystal layers". USA Patent: 9592116 Date of Patent: March 14, 2017. Assignee: Johnson & Johnson Vision Care, Inc.
- 11) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall" Methods and apparatus for ophthalmic devices including cycloidally oriented liquid crystal layers". USA Patent: 9541772 Date of Patent: January 20, 2017. Assignee: Johnson & Johnson Vision Care, Inc.
- 12) **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova, James Daniel Riall" Methods and apparatus for ophthalmic devices including cycloidally oriented liquid crystal layers". USA Patent: 9592116 Date of Patent: March 14, 2017. Assignee: Johnson & Johnson Vision Care, Inc.
- 13) Randall B. Pugh, Frederick A. Flitsch, James Daniel Riall, Praveen Pandojirao-S, Adam Toner, Stephen R. Beaton, Nelson V. Tabirian, Svetlana Serak, Olena Uskova, **Luciano De Sio**" Variable optic ophthalmic device including shaped liquid crystal elements with nano-scaled droplets of liquid crystal.

- USA Patent: 9500882 Date of Patent: November 22, 2016. Assignee: Johnson & Johnson Vision Care, Inc.
- 14) Randall Braxton Pugh, Frederick A. Flitsch, James Daniel Riall, Praveen Pandojirao-S, Adam Toner, Nelson V. Tabirian, Svetlana Serak, Olena Uskova, **Luciano De Sio** “Method and apparatus for ophthalmic devices comprising dielectrics and nano-scaled droplets of liquid crystal” USA Patent: 9442309 Date of Patent: September 13, 2016. Assignee: Johnson & Johnson Vision Care, Inc.
  - 15) Randall Braxton Pugh, Frederick A. Flitsch, Adam Toner, James Daniel Riall, Praveen Pandojirao-S, Nelson V. Tabirian, Svetlana Serak, Olena Uskova, **Luciano De Sio**” Method and apparatus for ophthalmic devices including shaped liquid crystal polymer networked regions of liquid crystal”. USA Patent: 93366881; Date of Patent: June 14, 2016. Assignee: Johnson & Johnson Vision Care, Inc.
  - 16) Randall Braxton Pugh, Frederick A. Flitsch, Adam Toner, James Daniel Riall, Praveen Pandojirao-S, Nelson V. Tabirian, Svetlana Serak, Olena Uskova, **Luciano De Sio** “Method and apparatus for ophthalmic devices comprising dielectrics and liquid crystal polymer networks”. USA Patent: 9335562; Date of Patent: May 10, 2016. Assignee: Johnson & Johnson Vision Care, Inc.
  - 17) Randall Braxton Pugh, Frederick A. Flitsch, Adam Toner, James Daniel Riall, Praveen Pandojirao-S, Nelson V. Tabirian, Svetlana Serak, Olena Uskova, **Luciano De Sio** “Method and apparatus for ophthalmic devices including hybrid alignment layers and shaped liquid crystal layers” USA Patent: 9268154; Date of Patent: February 23, 2016. Assignee: Johnson & Johnson Vision Care, Inc.
  - 18) Antonio D'Alessandro, Romeo Beccherelli, Cesare Umeton, Rita Asquini, Domenico Donisi, **Luciano De Sio**, Roberto Caputo “Electro-optical tunable filter and manufacturing process” USA Patent: 7925124; Date of Patent: April 12, 2011. Assignees: Universita Della Calabria, Universita Degli Studi Di Roma “La Sapienza”, CNR Consiglio Nazionale Delle Ricerche
  - 19) Randall B. Pugh, Frederick A. Flitsch, James Daniel Riall, Praveen Pandojirao-S, Adam Toner, Nelson V. Tabirian, Svetlana Serak, Olena Uskova, **Luciano De Sio**” Variable optic ophthalmic device including shaped liquid crystal elements and polarizing elements” Publication number: 20150077658: Filed: February 4, 2014. Applicant: Johnson & Johnson Vision Care, Inc.
  - 20) Stephen R. Beaton, **Luciano De Sio**, Frederick A. Flitsch, Praveen Pandojirao-S, Randall Braxton Pugh, James Daniel Riall, Svetlana Serak, Nelson V. Tabirian, Adam Toner, Olena Uskova “variable optic ophthalmic device including liquid crystal elements” Publication number: 20160062146. Filed: August 27, 2014. Applicant: Johnson & Johnson Vision Care, Inc.
  - 21) Roberto Bartolino, Luciano De Sio, Sameh Ferjani, Giuseppe Strangi, Cesare Umeton “Polymer matrix formed by polymeric walls alternated with empty channels and realization method” Publication number: WO2011036568 A2. Filed: September 24, 2010. Applicant: University of Calabria.

#### **Part XI– Oral presentation delivered by L. De Sio**

- **L. De Sio** “Thermo-plasmonic assisted biomedical applications” 6th Conference on Nano- and Micromechanics 3-5 July 2019 - Rzeszów, Poland - **Keynote Lecture**

- **L. De Sio** “Thermo-plasmonic triggered hydrogel based optical beam shutter” The 41st PIERS in Rome, Italy 17 - 20 June 2019 **Invited**
- **L. De Sio** “Thermo-plasmonic triggered light shutter” 17th International Photorefractive Workshop, Sarasota (FL, USA) June 10-14, 2019 **Invited**
- **L. De Sio** “Thermo-plasmonic triggered optical beam attenuator” 14th Mediterranean Workshop and Topical Meeting Novel Optical Materials and Applications Grand Hotel San Michele, Cetraro - Italy, June 02-08, 2019 **Invited**
- **L. De Sio**, U. Cataldi, A. Guglielmelli, T. Bürgi, N. Tabiryan and T.J. Bunning “*Detecting plasmonic heating via liquid crystals thermometry*” Nanophotonics and micro/nano optics, Rome , 01-03 October 2018. **Oral presentation**
- **L. De Sio** “*Plasmonics powered “hot” multifunctional platforms*” 104°Congresso Nazionale della Società Italiana di Fisica, Cosenza and Rende, 17-21 September 2018. **Invited**
- **L. De Sio** “*Hidden gratings in holographic liquid crystal polymer dispersed liquid crystals*” 12<sup>th</sup> Mediterranean Workshop and Topical Meeting "Novel Optical Materials and Applications", Grand Hotel S. Michele Cetraro- Italy, June 5-9, 2017. **Invited**
- **L. De Sio** “*Digital polarization holography advancing 4G optics*” Liquid Crystals XX, SPIE Optics +Photonics, San Diego California, United States, 28 August-1 September 2016. **Invited**
- **L. De Sio** “POLICRYPS structures: Self-aligning Liquid Crystals Electro-Optical Constructs” Society of Information Display (SID), October 2<sup>nd</sup> 2015, Minneapolis – **Invited**
- **L. De Sio**, G. Caracciolo, T. Placido, D. Pozzi, R. Comparelli, F. Annesi, M. L. Curri, A. Agostiano, R. Bartolino “*Photo-thermal effects in DNA/gold nanorods complexes*” Plasmonics in Biology and Medicine XII, SPIE PHOTONICS WEST BIOS, San Francisco, California, United States, 7-12 February 2015. **Oral presentation**
- **L. De Sio** “*Plasmonic Photo-thermal therapy: A new drug free cancer therapy* ” From life to life: Trough New Materials and Plasmonics 2014 (Accademia Nazionale dei Lincei- Italy). **Invited**
- **L. De Sio**, T. Placido, R. Comparelli, L. Curri, N. Tabiryan, T. Bunning “ *Thermo-plasmonics in self-organized materials*” Nanotech, advanced materials and Applications 2014 (Washington DC. USA) **Oral presentation**
- **De Sio, L.**, Serak, S. Klein, G., Cunningham, A., Burgi, T., Bartolino, R., Tabiryan, N , Umeton, C., Bunning, T., “Broadband Tuning of Plasmonic Resonance by Photoalignment of Liquid Crystals”, Optics of Liquid Crystals (OLC13), Honolulu, HI, Sept. 29-Oct 3, 2013 **invited**.
- **L. De Sio**, T. Placido, S. Serak, R. Comparelli, M. Tamborra, N. Tabiryan, L. Curri, R. Bartolino, C. Umeton, T. Bunning “*Plasmonic nanomaterials: a new route for biology and medicine*” 11<sup>th</sup> Mediterranean Workshop and Topical Meeting "Novel Optical Materials and Applications", Grand Hotel S. Michele Cetraro- Italy, June 10-15, 2013. **Invited**
- **L. De Sio**, T. Placido, S. Serak, R. Comparelli, M. Tamborra, N. Tabiryan, L. Curri, R. Bartolino, C. Umeton, T. Bunning “*A breakthrough in all-optical plasmonics and photonics*” Division of Polymeric Materials Science and Engineering, 25th ACS Meeting, New Orleans, Louisiana, April 7-11, 2013. **Invited**
- **L. De Sio** “Soft Matter: from Plasmonics to Optofluidics” College of Optics and Photonics (CREOL-UCF) 2012 Orlando-Florida **Invited**
- **L. De Sio**; R. Caputo; U. Cataldi; J. Dintinger; H. Sellame; T. Scharf; C. Umeton “Metallic subentities embedded in micro-periodic composite structure” SPIE Optics+Photonics, San Diego (CA) 21-08 2011- 25-082011 **Oral presentation**
- **De Sio L.** , Ferjani S, Strangi G, Umeton C. P, Bartolino R “Universal Light Sculptured Soft Template For Photonic Applications: From All-Optical and Electrical Reconfigurability to Metamaterials” 11<sup>th</sup> European Conference on Liquid Crystals- 06 02 2011-10 02 2011, Maribor (Slovenia) **Oral presentation**
- **De Sio L.** , Ferjani S, Strangi G, Umeton C. P, Bartolino R . “Universal Light Sculptured Soft Template For Photonic Applications: From All-Optical To Electrical Reconfigurability” 9<sup>th</sup> Italian National Meeting on Liquid Crystals - SICL 2010, Cetraro, Italy 05.06.2010 – 06.06.2010 **Oral presentation**

- **De Sio L.** , Ferjani S, Strangi G, Umeton C. P, Bartolino R . “A novel polymer matrix for confinement and alignment of self-organized organic materials” 13th Topical Meeting on the Optics of Liquid Crystals- OLC 2009 **Oral presentation**
- **De Sio L.** , Caputo R, Veltri A , Umeton C. P, Tabiryan N “In-situ Optical Control and Stabilization of the Curing Process of POLICRYPS Gratings” I-CAMP 2008, Boulder international workshop (Colorado). **Oral presentation**
- **De Sio L.** “Periodic Structures in Composite Materials for Photonics Applications” International Doctorate Workshop, Cetraro, Italy 27.9.2006 – 01.10.2006. **Oral presentation**
- **De Sio L.** , Caputo R, De Luca A , Sukhov A.V., Veltri A., Umeton C. P, “POLICRYPS Structures and Applications” 7<sup>0</sup> Mediterranean Workshop and Topical Meeting 'Novel Optical Materials and Applications', Cetraro, Italy. June 06-10, 2005. **Oral presentation**

## Part XII– Publications (Journal Citation Report)

### 2019

- 1) L. Pezzi<sup>†</sup>, **L. De Sio<sup>†</sup>**, A. Veltri, A. Cunningham, A. De Luca, T. Burgi, C. Umeton, R. Caputo “Plasmon-mediated Discrete Diffraction Behaviour of an Array of Responsive Waveguides” *Nanoscale* **2019** (DOI: 10.1039/C9NR06917H). **IF 2018: 6.970**. <sup>†</sup> *These authors contributed equally to this work.*
- 2) **L. De Sio**, P. F. Lloyd, N. V. Tabiryan, T. Placido, R. Comparelli, M. L. Curri, and T. J. Bunning “Thermo-Plasmonic Activated Reverse-Mode Liquid Crystal Gratings” *ACS Appl. Nano Mater.* **2019**, 2 (5), 3315. **IF 2018: NA**
- 3) *F. Annesi, A. Pane, M. A. Losso, A. Guglielmelli, F. Lucente, F. Petronella, T. Placido, R. Comparelli, M. G. Guzzo, M. L. Curri, R. Bartolino and L. De Sio* “Thermo-plasmonic killing of Escherichia Coli TG1 bacteria” *Materials* **2019**, 12(9), 1530. **IF 2018: 2.97**
- 4) **L. De Sio**, N. Tabiryan, M. McConney, and T. J. Bunning, "Cycloidal diffractive waveplates fabricated using a high-power diode-pumped solid-state laser operating at 532 nm," *J. Opt. Soc. Am. B* **2019**, 36, D136-D139. **IF 2018: 2.28**
- 5) *G. F. Walsh, L. De Sio, and N. Tabiryan, "Geometric phase diffractive waveplate singularity arrays [Invited]," J. Opt. Soc. Am. B* **2019**, 36, D126-D135. **IF 2018: 2.28**
- 6) L. Pezzi, A. Pane, F. Annesi, M. A. Losso, A. Guglielmelli, C. Umeton, and **L. De Sio** Antimicrobial Effects of Chemically Functionalized and/or Photo-Heated Nanoparticles *Materials* **2019**, 12(7), 1078 **IF 2018: 2.97**
- 7) A. Guglielmelli, S. H. Nemat, A. V. Vasdekis and **L. De Sio** “Stimuli responsive diffraction gratings in soft-composite materials” *Journal of Physics D: Applied Physics* **2019**, 52 (5) 053001. **IF 2018: 2.82**

## 2018

- 8) R Caputo, A. De Luca, G. Strangi, R. Bartolino, C. Umeton, **L. De Sio**, A. Veltri, S. Serak, N. Tabiryan “*The POLICRYPS liquid-crystalline structure for optical applications*” *Advanced Optical Technologies* **2018**, 7(5), 273. **IF 2017: NA**
- 9) F. Pierini, P. Nakielski, O. Urbanek, S. Pawłowska, M. Lanzi, **L. De Sio** and T. A. Kowalewski “*Polymer-Based Nanomaterials for Photothermal Therapy: From Light-Responsive to Multifunctional Nanoplatfoms for Synergistically Combined Technologies*” *Biomacromolecules* **2018**, 19 (11), 4147. **IF 2017: 5.73**
- 10) G. Palermo, A. Guglielmelli, L. Pezzi, U. Cataldi, **L. De Sio**, R. Caputo, A. De Luca, T. Bürgi, N. Tabiryan & C. Umeton “*A command layer for anisotropic plasmonic photo-thermal effects in liquid crystal*” *Liquid Crystals* **2018**, 45:13-15, 2214. **IF 2017: 2.63**
- 11) L. Pezzi, **L. De Sio**, T. Placido, R. Comparelli and C. Umeton “*Photo-induced temperature variations in plasmonic nanoparticles trapped in thermo-sensitive liquid crystals*” *Journal of Nanoscience and Nanotechnology* **2018** J. Nanosci. Nanotechnol. 18, 6708. **IF 2017: 1.35**
- 12) **L. De Sio**, U. Cataldi, A. Guglielmelli, T. Bürgi, N. Tabiryan, T. J. Bunning “*Dynamic optical properties of gold nanoparticles/cholesteric liquid crystal arrays*” *MRS Communications* **2018**, 8(2), 550. **Paper selected for the 2019 MRS Communications Award. IF 2017: 3.008**
- 13) G. Walsh, **L. De Sio**, D. E. Roberts, N. Tabiryan, F. J. Aranda, B.K. Kimball “*Parallel sorting of orbital and spin angular momenta of light in record large number of channels*” *Optics Letters* **2018**, 43 (10), 2256. **IF 2017: 3.58**
- 14) **L. De Sio**, P.F. Lloyd, N. V. Tabiryan, T.J. Bunning “*Hidden gratings in holographic liquid crystal polymer dispersed liquid crystals*” *ACS Appl. Mater. Interfaces*, **2018**, 10 (15), 13107–13112. **IF 2017: 8.09**
- 15) **L. De Sio**, D.E. Roberts, Z. Liao, J. Hwang, N. Tabiryan, D.M. Steeves and B. R. Kimball “*Beam shaping diffractive waveplates*” *Applied Optics* **2018**, 57, A118. **IF 2017: 1.79**

## 2017

- 16) G. Palermo, L. Barberi, G. Perotto, R. Caputo, **L. De Sio**, C. Umeton, and F. G. Omenetto “*A biocompatible silk-azobenzene elastomeric composite for optically switchable diffractive structures*” *ACS Appl. Mater. Interfaces*, **2017**, 9 (36), 30951–30957. **IF 2016: 7.50**
- 17) **L. De Sio**, Z. Liao, N. Tabiryan and T. J. Bunning, “*Chirped POLICRYPS gratings containing self-aligning liquid crystals*” *Materials Research Express* 4, 055303 (**2017**) **IF 2016: 1.42**
- 18) **L. De Sio**, E. Ouskova, P. Lloyd, R. Vergara, N. Tabiryan, and T. J. Bunning, “*Light-addressable liquid crystal polymer dispersed liquid crystal*,” *Opt. Mater. Express* 7, 1581-1588 (**2017**) **IF 2016: 2.59**

## 2016

- 19) G. Palermo, U. Cataldi , **L. De Sio** , T. Bürgi , N. V Tabiryan , C. P. Umeton “Optical control of plasmonic heating effects using reversible photo-alignment of nematic liquid crystal” *Applied Physics Letters* **2016** 109, 191907. **IF 2015: 3.14**
- 20) **L. De Sio**, T. Placido, R. Comparelli, L. Curri, N. Tabiryan, T. Bunning “Plasmonic photoheating of gold nanorods in thermo-responsive chiral liquid crystals” *J. Opt.* 18 (12), 125005, **2016. IF 2015: 2.11**
- 21) **L. De Sio**, D. E. Roberts, Z. Liao, S. Nersisyan, O. Uskova, L. Wickboldt, N. Tabiryan, D. M. Steeves, and B. R. Kimball “Digital polarization holography advancing geometrical phase optics” *Optics Express* **2016**, 24(16), 18297-18306. **IF 2015: 3.14**
- 22) **L. De Sio**, U. Cataldi, T. Burgi, N. Tabiryan, T.J. Bunning “Control of the plasmonic resonance of a graphene coated plasmonic nanoparticles array combined with nematic liquid crystal” *AIP advances* 6, 075114, **2016 IF 2015: 1.44**

## 2015

- 23) **L. De Sio**, N. Tabiryan, T. Bunning “POLICRYPS based electro-switchable Bragg reflector” *Optics Express* 2015, 23, 32696-32702. **IF 2014: 3.48**
- 24) **L. De Sio**, G. Caracciolo, F. Annesi, T. Placido, D. Pozzi, R. Comparelli, A. Pane, M. L. Curri, A. Agostiano, R. Bartolino “Photo-thermal effects in gold nanorods / DNA complexes” *Micro and Nano Systems Letters* 2015, 3 (8), 1-9. **IF 2014: NA**
- 25) G. Palermo, **L. De Sio**, C. Umeton “Flexible Structures Based on a Short Pitch Cholesteric Liquid Crystals” *Molecular Crystals and Liquid Crystals* 2015; 619, 35-41. **IF 2014: 0.55**
- 26) G. Palermo, **L. De Sio**, T. Placido, R. Comparelli, M. L. Curri, R. Bartolino and C. Umeton “Plasmonic Thermometer Based on Thermotropic Liquid Crystals” *Molecular Crystals and Liquid Crystals* **2015**; 614, 93-99. **IF 2014: 0.55**
- 27) L. Pezzi, **L. De Sio**, A. Veltri, T. Placido, G. Palermo, R. Comparelli, M. L. Curri, A. Agostiano, N. Tabiryan, C. Umeton “Photo-thermal effects in gold nanoparticles dispersed in thermotropic nematic liquid crystals” *Physical Chemistry Chemical Physics* 2015, 17, 20281-20287 **IF 2014: 4.68**
- 28) **L. De Sio**, G. Caracciolo, F. Annesi, T. Placido, D. Pozzi, R. Comparelli, A. Pane, M. L. Curri, A. Agostiano, R. Bartolino “Plasmonics Meets Biology through Optics” *Nanomaterials* 2015, 5(2), 1022-1033. **IF 2014: 2.07**
- 29) R. Caputo, P. Palermo, M. Infusino, **L. De Sio**, “Liquid Crystals as an Active Medium: Novel Possibilities in Plasmonics” *Nanospectroscopy* 2015, 1, 2300-3537. **IF 2014: NA**
- 30) **L. De Sio**, T. Placido, R. Comparelli, L. Curri, M. Striccoli, N. Tabiryan, T. Bunning “Next-generation thermo-plasmonic technologies and plasmonic nanoparticles in optoelectronics” *Progress in Quantum Electronics* 2015, 41, 23–70. **The paper has been included in the Virtual Special Issue on the International Year of Light (Second Edition) IF 2014: 6.92**

- 31) **L. De Sio**, G. Caracciolo, T. Placido, D. Pozzi, R. Comparelli, F. Annesi, M. L. Curri, A. Agostiano, R. Bartolino “Applications of nanomaterials in modern medicine” *Rendiconti Lincei. Scienze Fisiche e Naturali* 2015, 26, 231-237 **IF 2014: 0.75**
- 32) **L. De Sio**, F. Annesi, T. Placido, R. Comparelli, V. Bruno, A. Pane, G. Palermo, L. Curri, C. Umeton, R. Bartolino “Templating gold nanorods with liquid crystalline DNA” *J. Opt.* 2015, 17, 025001. Research highlights 2015 (IOP LabTalk). **IF 2014: 2.38**
- 33) H. M Atkuri, E. Sok Ping Leong, J. Hwang, G. Palermo, G. Si, J. M. Wong, L. C. Chien, J. Ma, K. Zhou, Y. J. Liu and **L. De Sio** “Developing novel liquid crystal technologies for display and photonic applications” *Displays* 2015 36, 21–29. **IF 2014: 1.62**

## 2014

- 34) E. Ouskova, **L. De Sio**, R. Vergara, T. J. White, N. Tabiryan and T. J. Bunning “Ultra-fast solid state electro-optical modulator based on liquid crystal polymer and liquid crystal composites” *Applied Physics Letters* **2014**, 105(23), 231122. **IF 2013: 3.51**
- 35) V. Caligiuri<sup>+</sup>, **L. De Sio**<sup>+</sup>, L. Petti<sup>+</sup>, R. Capasso, M. Rippa, M. G. Maglione, N. Tabiryan and C. Umeton “Electro/All Optical Light Extraction in Gold Photonic Quasi-Crystals Layered with Photosensitive Liquid Crystals” *Advanced Optical Materials* **2014**, 2 (10), 950-955. <sup>+</sup>*These authors contributed equally to this work.* **IF 2013: 4.06**
- 36) **L. De Sio**, N. Tabiryan, T. Bunning “Spontaneous radial liquid crystals alignment on curved polymeric surfaces” *Applied Physics Letters* **2013**, 104 (22), 221112. **IF 2014: 3.51**
- 37) **L. De Sio**, V. Caligiuri, C. Umeton “Tunable broadband optical filter based on soft-composite materials” *J. Opt.* **2014**, 16, 065703. **The article has been chosen by the journal editors for its novelty, significance and potential impact on future research. IF 2013: 1.96**
- 38) **L. De Sio**, S. Serak, N. Tabiryan T. Bunning “Nanosecond switching of photo-responsive liquid crystal diffraction gratings” *J. Mater. Chem. C*, **2014** ,2, 3532-3535 **IF 2013: 4.69**
- 39) **L. De Sio** and N. Tabiryan “Polymer liquid crystal/polymer composite systems containing self-aligning liquid crystals” *J. Polym. Sci., Part B: Polym. Phys.* **2014**, 52, 3, 158-162. **Paper include also the front cover picture of the journal IF 2013: 4.01**

## 2013

- 40) **L. De Sio** , G. Palermo, V. Caligiuri, A. Vasdekis, A. Pane, J.W. Choi, L. Maffli, M. Niklaus, H. Shea, C. Umeton “Electro and pressure tunable cholesteric liquid crystal devices based on ion-implanted flexible substrates” *J. Mater. Chem. C* , **2013**, 1 (47), 7798 – 7802 **IF 2012: 4.69**
- 41) **L. De Sio**, G. Klein , S. Serak, N. Tabiryan, A. Cunningham, C. M. Tone, F. Ciuchi, T. Bürgi, C. Umeton, T. Bunning “All-optical control of localized plasmonic resonance realized by photoalignment of liquid crystals” *J. Mater. Chem. C*, **2013**, 1 (45), 7483 – 7487 **IF 2012: 4.69**
- 42) **L. De Sio**, T. Placido, S. Serak, R. Comparelli, M. Tamborra, N. Tabiryan, L. Curri, R. Bartolino, C. Umeton, T. Bunning “Nano-Localized Heating Source for Photonics and Plasmonics” *Advanced*

Optical Materials **2013**, 1(12), 992 **Paper include also the back cover picture of the journal. Paper has been included in 12 outstanding articles published in Advanced Optical Materials in 2013. IF 2012: 4.06**

- 43) **L. De Sio**, N. Tabiryan, T. Bunning, B. R. Kimball, C. Umeton “Dynamic Photonic Materials based on Liquid Crystals” *Progress in Optics* **2013**, 58, 1-64 (Editor: Emil Wolf) **IF 2012: 3.55**
- 44) M. Romito, **L. De Sio**, A. E. Vasdekis, C. Umeton “Optofluidic microstructures containing liquid crystals” *Molecular Crystals and Liquid Crystals*, **2013**, 576, 135-140. **IF 2012: 1.10**
- 45) **L. De Sio**, P. D’Aquila, E. Brunelli, G. Strangi, G. Passarino, C. Umeton, R. Bartolino “Direct organization of DNA filaments in a soft matter template” *Langmuir*, **2013** 29 (10) 3398-3403. **IF 2012: 4.18**
- 46) **L. De Sio**, A. Veltri, R. Caputo, A. De Luca, R. Bartolino, C.P. Umeton “POLICRYPS composite structures: realization, characterization and exploitation for electro - optical and all optical applications” *Liquid Crystals Reviews* **2013**, 1, 2-19. **IF 2012: 2.34**
- 47) **L. De Sio**, S. Ferjani, G. Strangi, C. Umeton, R. Bartolino “Soft Periodic Microstructures Containing Liquid Crystals” *J. Phys. Chem. B*, **2013**, 117, 1176–1185 **IF 2012: 3.60**

## 2012

- 48) **L. De Sio**, A. Veltri, R. Caputo, A. De Luca, R. Bartolino, C.P. Umeton “Soft matter structures: From switchable diffraction gratings to active plasmonics” *La Rivista del Nuovo Cimento* 2012, 11, 575 **IF 2011: 4.80**
- 49) **L. De Sio**, A. Cunningham, V. Verrina, C. M. Tone, R. Caputo, T. Buergi, C. Umeton “Double active control of the plasmonic resonance of a gold nanoparticle array” *Nanoscale* 2012, **4**, 7619-7623 **IF 2011: 5.91**
- 50) **L. De Sio**, M. Romito, M. Giocondo, A. E. Vasdekis, A. De Luca, C. Umeton “Electro switchable polydimethylsiloxane based optofluidics” *Lab on a Chip*, 2012, **12**, 3760-3765 **IF 2011: 5.67**
- 51) **L. De Sio**, L. Ricciardi, S. Serak, M. La Deda, N. Tabiryan, C. Umeton "Photo-sensitive liquid crystals for optically controlled diffraction gratings" *J. Mater. Chem.* **22**, 6669 (2012) **IF 2011: 6.02**
- 52) **L. De Sio**, A. Tedesco, N. Tabiryan, C. Umeton, " Light sensitive liquid crystals for all-optical photonic devices". *Molecular Crystals and Liquid Crystals*, 560, 143-148 (2012). **IF 2011: 1.10**
- 53) R. Caputo, **L. De Sio**, J. Dintinger, H. Sellame, T. Scharf & C. P. Umeton “Realization and Characterization of POLICRYPS-like Structures Including Metallic Subentities”, *Molecular Crystals and Liquid Crystals*, **553**, 111-117 (2012). **IF 2011: 1.10**
- 54) **L. De Sio**, S. Ferjani, G. Strangi, C. Umeton, R. Bartolino “General Purpose Soft Template for Photonic Applications: From All-Optical to Electrical Reconfigurability” *Molecular Crystals and Liquid Crystals*, **553**, 147-152 (2012). **IF 2011: 1.10**
- 55) U. Cataldi, P. Cerminara, **L. De Sio**, R. Caputo & C. P. Umeton “Fabrication and Characterization of Stretchable PDMS Structures Doped With Au Nanoparticles”, *Molecular Crystals and Liquid Crystals*, **558**, 22-27 (2012). **IF 2011: 1.10**



- 56) A. Fasanella, M. Castriota, E. Cazzanelli, **L. De Sio**, R. Caputo, C. Umeton Molecular Orientation of E7 Liquid Crystal in POLICRYPS Holographic Gratings: A Micro-Raman Spectroscopic Analysis, *Molecular Crystals and Liquid Crystals*, **558**, 46-53 (2012). **IF 2011: 1.10**
- 57) G. Gilardi, R. Asquini, A. d'Alessandro, R. Beccherelli, **L. De Sio**, C. Umeton "All-Optical, and Thermal Tuning of a Bragg Grating Based on Photosensitive Composite Structures Containing Liquid Crystals" *Molecular Crystals and Liquid Crystals*, **558**, 64-71(2012). **IF 2011: 1.10**
- 58) R. Caputo, **L. De Sio**, U. Cataldi, C. Umeton "Plasmon Resonance Tunability of Gold Nanoparticles Embedded in a Confined Cholesteric Liquid Crystal Host" *Molecular Crystals and Liquid Crystals*, **559**, 194-201 (2012). **IF 2011: 1.10**

## 2011

- 59) J. G. Cuennet, A. E. Vasdekis, **L. De Sio** and D. Psaltis "Light modulation enabled by liquid crystal microflows" *JNOPM* **20** (2011). **IF 2010: 0.55**
- 60) G. Gilardi, **L. De Sio**, R. Beccherelli, R. Asquini, A. d' Alessandro and C. Umeton "Observation of tuneable optical filtering in photosensitive composite structures containing liquid crystals" *Optics Letters*, **36**, 4755-4757 (2011). **IF 2010: 3.11**
- 61) **L. De Sio**, R. Caputo, U. Cataldi, C. Umeton, "Broad band tuning of the plasmonic resonance of Gold nanoparticles hosted in self-organized soft materials". *J. Mater. Chem.*, **21**, 18967 (2011) **paper selected in the top five hot-articles. IF 2010: 4.52**
- 62) **L. De Sio**, A. Vasdekis, J. Cuennet, A. De Luca, A. Pane, D. Psaltis, " Silicon oxide deposition for enhanced optical switching in polydimethylsiloxane-liquid crystal hybrids". *Optics Express*, **19**, 23532-23537 (2011). **IF 2010: 3.74**
- 63) **L. De Sio**, A. Tedesco, N. Tabiryan, C. Umeton, " Realization of Photoresponsive Diffractive Beam Splitters". *Molecular Crystals and Liquid Crystals*, **549**, 57-61 (2011). **IF 2010: 0.54**
- 64) M. Castriota, A. Fasanella, E. Cazzanelli, **L. De Sio**, R. Caputo, and C. Umeton, "In situ polarized micro-Raman investigation of periodic structures realized in liquid-crystalline composite materials," *Opt. Express* **19**, 10494-10500 (2011). **IF 2010: 3.74**
- 65) R. Caputo, I. Trebisacce, **L. De Sio**, C. Umeton, " Phase Modulator Behavior of a Wedge-Shaped POLICRYPS Diffraction Grating". *Molecular Crystals and Liquid Crystals*, **549**, 29-36 (2011). **IF 2010: 0.54**
- 66) D. Donisi, **L. De Sio**, R. Beccherelli, M. A. Caponero, A. d'Alessandro and C. Umeton "Optical interrogation system based on holographic soft matter filter"*Applied Physics Letters*, **98**, 151103-151103-3 (2011). **IF 2010: 3.87**
- 67) **L. De Sio**, S. Serak and N. Tabiryan C. Umeton "Mesogenic Versus non-Mesogenic Azo Dye Confined in a Soft-Matter Template for Realization of Optically Switchable Diffraction Gratings" *J. Mater. Chem.* **21**, 6811-6814 (2011). **Paper include also the front cover picture of the journal. IF 2010: 4.52**

- 68) **L. De Sio**, A. Veltri, C. Umeton “Holographic Grating Designed for the Stability Control of an Active Interferometric Setup” *JNOPM* **20** (2011). **IF 2010: 0.55**
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- 10) R. Caputo, **L. De Sio**, U. Cataldi, C. P. Umeton “Amorphous Nanophotonics” Chapter 12. Springer 2013
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#### Part XV– Articles about research that have appeared in popular press

- **L. De Sio**, V Caligiuri, C. Umeton "Tuneable broadband optical filter based on soft-composite materials” *Europhysicsnews* Vol 45, N°4 2014
- **L. De Sio** “A smart nanothermometer” Nanowerk Spotlight article (2013) <http://www.nanowerk.com/spotlight/spotid=32606.php>

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#### **Part XVI– Referee for the following journals**

Applied Optics; Materials; Optical Materials Express; Molecular Crystals and Liquid Crystals; Journal of The Electrochemical Society; Journal of Optics; The Scientific World Journal; Optics Express; Colloids and Surfaces A: Physicochemical and Engineering Aspects (Elsevier); Journal of Physics D: Applied Physics (IOP); Optics Letters; Physica B (Elsevier); Science of Advanced Materials; International Journal of Modern Physics B; Journal of Micromechanics and Microengineering; Journal of Materials Chemistry C; Micro and Nanosystems; Materials Chemistry and Physics (Elsevier); Optical and Quantum Electronics (Springer); Polymers; Journal of Polymer Science: Polymer Physics (Wiley); Nanoscale; Nanotechnology; ACS Applied Materials & Interfaces; RSC Advances; Applied surface Science (Elsevier); Journal of Materials Chemistry A, C.

#### **Part XVII– Masters and Ph.D Student Supervised**

Alessandro Tedesco; Vanessa Verrina; Marilisa Romito; Orangis Paolo; Biscardi Antonio; Vincenzo Calingiuri; Ugo Cataldi; Giuseppe Borrello; Giovanni Liveri; Orsola Capolupo; Julien Cuennet; Giovanna Palermo; Alexa Guglielmelli.

#### **Part XVIII– Organization of Schools, International Conferences and Workshops**

VII – VIII – IX and X Mediterranean Workshop and Topical Meeting on Novel Optical Materials and Applications, Cetraro (CS), NOMA, **2005 - 2011**.

41 st Photonics & Electromagnetics Research Symposium (PIERS) 2019, Rome, Italy, 17-20 June, 2019

#### **Part XIX– Other titles/activities**

**2013** - NATIONAL SCIENTIFIC QUALIFICATION (ITALY): NATIONAL SCIENTIFIC HABILITATION AS ASSOCIATE PROFESSOR IN APPLIED PHYSICS (02/B3) AND EXPERIMENTAL PHYSICS (02/B1)

**2017** - NATIONAL SCIENTIFIC QUALIFICATION (ITALY): NATIONAL SCIENTIFIC HABILITATION AS ASSOCIATE PROFESSOR AND FULL PROFESSOR IN EXPERIMENTAL PHYSICS (02/B1)

**PH.D JURY MEMBER** FOR JULIEN CUENNET (OPTICS LAB, EPFL-LAUSANNE) ON Integration of Liquid Crystals Molecules in Optofluidics Devices (Supervisor prof. Demetri Psaltis)- 8<sup>th</sup> Nov 2013

**PH.D JURY MEMBER** FOR ROSSELLA GRILLO (DEPARTMENT OF PHYSICAL CHEMISTRY, UNIVERSITY OF GENEVA) ON Self-Assembled Nanostructures for Applications in Plasmonic Metamaterials (Supervisor prof. Thomas Burgi)- 7<sup>th</sup> October 2019

**REVIEWER FOR A GRANT PROPOSAL FOR THE NATIONAL SCIENCE CENTER, POLAND (2014, 2016, 2017, 2018)**

**GUEST EDITOR FOR THE FOLLOWING SPECIAL ISSUES:**

1) **Photo-thermal effects of nanomaterials**

[https://www.mdpi.com/journal/materials/special\\_issues/photothermal\\_nanomaterials](https://www.mdpi.com/journal/materials/special_issues/photothermal_nanomaterials))

2) **Active Plasmonics with Liquid Crystals**

[https://www.mdpi.com/journal/nanomaterials/special\\_issues/Plasmonics\\_Liquid\\_Crystals](https://www.mdpi.com/journal/nanomaterials/special_issues/Plasmonics_Liquid_Crystals)

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