

**Emiliano Descrovi**  
**CURRICULUM VITAE**

**PERSONAL Details**

Date of birth: 9<sup>th</sup> October 1974

Nationality: Italian

ORCID ID: [0000-0002-3613-2967](https://orcid.org/0000-0002-3613-2967)

H-index: **35**; **32** w/o self-cit. (Scopus & WoS)

About **3100** Total Citations 2006-2023 (Scopus)

• **EDUCATION**

2005 PhD, Institut de Microtechnique –IMT, University of Neuchatel, Switzerland.

1999 Master in Physics, Università degli Studi di Torino, Italy. Score: 110/110 with honors.

• **CURRENT POSITIONS**

2014 Associate Professor of Physics, Dept. of Applied Science and Technology- Politecnico di Torino, Italy

• **PREVIOUS POSITIONS**

2020-2021 Full Professor of Photonic Technologies (permanent position), Dept. of Electronic Systems, Norwegian University of Science and Technology –NTNU, Trondheim, Norway.

2018-2020 Associate at the Istituto Nazionale di Ricerca Metrologica (INRiM), Torino, Italy.

2019 Visiting Professor at Université Franche-Comté & FEMTO-ST, CNRS Besancon, France.

2017 Invited Visiting Professor at EPFL, Lausanne, Switzerland (3 months).

2016-2017 Teaching Professor at Università Cattolica del Sacro Cuore, Italy.

2015-2016 Associate at the Istituto di Scienze dell’Alimentazione, National Research Council (CNR), Avellino, Italy.

2013 Invited Visiting Professor at EPFL, Lausanne, Switzerland (2 months).

2012-2014 Permanent Assistant Professor (Researcher), DISAT- Politecnico di Torino , Italy

2011-2012 Scientific collaborator, Italian Institute of Technology, Dept. of Nanostructures, Genova, Italy

2005–2012 PostDoc, DISAT, Politecnico di Torino, Italy

2000-2005 Research assistant, Institut de Microtechnique -IMT- Université de Neuchâtel, Switzerland

1999 Trainee at Fermi National Laboratory (USA).

• **ORGANISATION OF SCIENTIFIC MEETINGS**

2024 Program committee member of PHOTOPTICS 2024, 12th International Conference on Photonics, Optics and Laser Technology, Rome 21-23/02/2024.

2023 Chair of the CK-3 session: Resonant structures and cavities at CLEO EUROPE, Munich, on June 27<sup>th</sup>.

2023 Chair of the Early-stage Researcher (ESR) Sessions at CLEO EUROPE, Munich, on June 26<sup>th</sup> and 28<sup>th</sup>.

2023 Scientific Committee member of the Workshop Plasmonica 2023, 5-7 July, Milano.

2023 Program Chair of the EOSAM2023 International Conference, Dijon 11-15 September 2023.

2022 Organizer of the Workshop “Plasmonica 2022”, Polytechnic University of Turin, 7-8 July 2022 (supported by SIOF).

2022 Organizer of the International School “Plasmonics and Nano-Optics 2022”, Polytechnic University of Turin, 4-7 July 2022 (supported by SIOF).

2018 Organizer of the Workshop “Advances in label-free and fluorescence microscopy”, Polytechnic University of Turin, 26 June 2018. Sponsorship by Nikon Italia

2017 Co-organizer “Bloch Surface Wave Workshop”, EPFL, Neuchatel 18<sup>th</sup>-19<sup>th</sup> May 2017.

2015 Scientific committee in NanoTechItaly (Health Care & Medical Devices), Bologna, Italy

2011-present Scientific committee for Micro and Nano Engineering ‘10, Micro and Nano Engineering ‘11, Micro and Nano Engineering (MNE) ‘12, MNE2013, MNE2014, MNE2015, MNE2016, MNE2017 and the Optical Symposium OEPT 2010, OEPT2011, OEPT2012, 1st International Conference on Sensors Engineering and Electronics Instrumental Advances (SEIA 2015), The First International Conference on Advances in Sensors, Actuators, Metering and Sensing ALLSENSORS 2016 April 24 - 28, 2016 - Venice, Italy, ALLSENSORS 2017 March 19 - 23, 2017, Nice, France, ALLSENSORS 2018, 25-29 March, Rome,

Italy, SENSORDEVICES 2018, 16-20 September, Venice (IT).

2009 Scientific committee in NanoForum (NanoMedicine), Torino, Italy

- **COMMISSIONS OF TRUST**

2023 Evaluator for the European Commission in the “Excellent Science” pillar, ERC, Horizon Europe program.

2022 President-elect of the European Optical Society (2-year mandate)

2021 EOSAM chair of the student award committee (Rome, 13-17 September).

2020-2024 Member of the Board of Directors, European Optical Society –EOS-

2019 Project evaluator for the Natural Sciences and Engineering Research Council of Canada (NSERC).

2018 Project evaluator for the Israeli Ministry of Science and Technology

2018-present Member of the committee for PhD program in Physics, Politecnico di Torino

2017 Evaluator for the “Omega Award”, Fondation du Prix Omega, Bienne, Switzerland.

2015-2020 Member of the “Collegio di Ingegneria Elettronica, delle Telecomunicazioni e Fisica (ETF)”, Politecnico di Torino

2015-2017 Member of the committee for PhD program in Electrical, Electronics and Communications Engineering, Politecnico di Torino

2014-2020 Member of the “Collegio di Ingegneria Biomedica”, Politecnico di Torino

2012 Italian ANVUR National Evaluator

2012 National Substitute Member for the EU COST Action MP0803 “Plasmonics Components and Devices”

2010 Project reviewer for the “Office of Basic Energy Sciences”, U.S. Department of Energy.

- **EDITORIAL ACTIVITIES**

2005-2022 Article reviewer for: ACS Applied Materials and Interfaces (ACS), Journal of Lightwave Technology (IEEE, OSA), ACS Photonics (ACS), Nature Communications (Nature Publishing Group), Light: Science & Applications (Nature Publishing Group), ACS Nano (ACS), Journal of Physical Chemistry C (ACS), ACS Sensors (ACS), Nanotechnology (IOP), Optics Letters (OSA), Applied Optics (OSA), Optics Express (OSA), J. Opt. Soc. Am. A (OSA), J. Opt. Soc. Am. B (OSA), Chinese Optics Letters (OSA), Applied Physics Letters (AIP), APL Photonics (AIP), Journal of Applied Physics (AIP), Plasmonics (Springer), Applied Surface Science (Elsevier), Journal of European Optical Society-Rapid Communication (EOS), Sensors and Actuators B (Elsevier), Sensors and Actuators A (Elsevier), BioNanoScience (Springer), Sensors (MDPI), Thin Solid Films (Elsevier), Journal of Scientific Research and Reports (ScienceDomain International), Journal of NanoBioTechnology (Springer), Crystals (MDPI), Materials Research Express (IOP), Measurement Science and Technology (IOP), Optical Materials Express (OSA), Science and Technology of Advanced Materials (IOP), Molecules (MDPI), Microelectronics Engineering (Elsevier), Journal of Materials Chemistry C (RSC), Physical Chemistry Chemical Physics (RSC), Biomaterials Science (RSC), Journal of Luminescence (Elsevier), Materials Chemistry and Physics (Elsevier), Optik - International Journal for Light and Electron Optics (Elsevier), Soft Matter (RSC), Materials Today (Elsevier), Materials Chemistry and Physics (Elsevier), Journal of Selected Topics in Quantum Electronics (IEEE), Optical Engineering (SPIE), ChemPhotChem (Wiley), Annalen der Physik (Wiley), Advanced Functional Materials (Wiley), Macromolecular Materials and Engineering (Wiley), Journal of Microscopy (Wiley), Laser & Photonics Reviews (Wiley), Advanced Materials (Wiley).

2015-2020 Member of Editorial Board of Scientific Reports (Nature Publishing Group).

2017 Guest Editor of Special Issue “Surface Waves on Planar Photonic Crystals”, Applied Sciences, MDPI

[http://www.mdpi.com/journal/applsci/special\\_issues/Planar\\_Photonic\\_Crystals](http://www.mdpi.com/journal/applsci/special_issues/Planar_Photonic_Crystals)

2018 Editorial Board Member of Sensors, MDPI

2021 Contributor to the book for popular dissemination “10 anni in buona Compagnia... Storia di un laboratorio di nanofabbricazione”, Otto Editore, ISBN: 978-88-95285-69-6 (*outreach*).

2022 Advisory board member for the Journal of European Optical Society: Rapid Communications (JEOS:RP) as representative of SIOF (Società Italiana di Ottica e Fotonica).

2022-2023 Topical Editor on JEOS:RP.

- **INVITED TALKS/LECTURES**

- 2023 Plenary Speaker at the Optics & Photonics Japan OPJ 2023, Sapporo 27-29/11/2023.
- 2023 Invited at the round table of the 11<sup>th</sup> Young Minds meeting, by the European Physical Society (EPD), Napoli 19-20 May. Topic: “New world, new publishing” (*outreach event*).
- 2023 Plenary Speaker at the Optics and Photonics Days OPD2023, 30/05-2/06, Joensuu, Finland.
- 2023 Invited at the Panel List in the Photonics Students Meet up “Transitioning from academia to industry”, Joensuu 30th May (*outreach event*).
- 2023 Keynote speaker at the 19th International Conference on Thin Films, Burgos, Spain 26-29th September.
- 2021 SNOW MOUNTAIN SUMMIT 2021 Future Optical Technologies Workshop, 28-29 January, organized by Huawei Europe Research Institute and the Institute of Strategic Research.
- 2020 E-MRS, ALTECH symposium “Nanomaterials and advanced characterization”, Strasbourg, May 25-29. (canceled because of covid-19).
- 2019 The 41st PIERS- Photonics & Electromagnetics Research Symposium, Rome 17 - 20 June 2019.
- 2018 Nano-Micro Conference 2018 – Frontier Research Today, Jeju, Korea 17-20/12/2018.
- 2017 Tutorial at Nikon Workshop “Nuove Frontiere in Microscopia”, Bari, Italy, September 26th 2017.
- 2016 Tutorial on “Photonic nanostructures for efficient optical sensors”, CLEO, San Jose (US) 5th-10th June.
- 2016 Lecture at the XXV Giornate di Studio sui Rivelatori, Scuola F. Bonaudi, Cogne, Italy, February 23-26.
- 2015 International Congress on Biophotonics (ICOB 2015), Florence, May 18-22 2015.
- 2015 39th International Conference and Expo on Advanced Ceramics and Composites, Daytona Beach (US).
- 2014 1st CEITEC Annual Conference: Frontiers in Life and Materials Sciences, Brno (CZ)
- 2014 European Optical Society Annual Meeting, TOM1- guided optics, Berlin (DE) .
- 2014 Fotonica 2014, Napoli, May 12-14 2014.
- 2014 ANIS4 Vipiteno, January 27-31 2014.
- 2013 NanotechItaly, Venice, November 27-29 2013.
- 2012 Preparatory School to the Winter College on Optics: Advances in Nano-Optics and Plasmonics, Trieste ICTP, January 30- February 3 2012.
- 2012 Frontiers in Biological Detection Conference, PlasmoBio Workshop, Mons (BE), May 21-22 2012.
- 2010 Science and Technology in Society forum 2010, Kyoto, Japan (*outreach event*).

## Publication List

- **PEER-REVIEWED ARTICLES**

### 2023

- 87)** G. J. Chaplain, A. S. Gliozzi, B. Davies, D. Urban, E. Descrovi, F. Bosia, R. V. Craster, «Tunable topological edge modes in Su-Schrieffer-Heeger arrays», *Appl. Phys. Lett.* 122, 221703 (2023). *Editor's Pick*
- 86)** N. Marcucci, T. Guo, S. Pelisset, M. Roussey, T. Grosjean, E. Descrovi, «Bloch Surface Waves in open Fabry-Perot microcavities», *Micromachines* 14, 509 (2023).
- 85)** N. Marcucci, M. C. Giordano, G. Zambito, A. Troia, F. Buatier de Mongeot, E. Descrovi, «Spectral tuning of Bloch Surface Wave resonances by light-controlled optical anisotropy», *Nanophotonics* 12, 1091-1104 (2023).
- 84)** C. Eustache, A. Lereu, R. Salut, A. Moreau, M. A. Suarez, E. Descrovi, J. Lumeau, T. Grosjean, «Miniaturized Bloch surface wave platform on a multicore fiber», *ACS. Phot.* 10, 1694–1701 (2023).

### 2022

- 83)** Y. Augenstein, M. Roussey, T. Grosjean; E. Descrovi, C. Rockstuhl, «Inverse design of cavities for Bloch Surface Waves interfaced to integrated waveguides», *Photonics and Nanostructures - Fundamentals and Applications* 52, 101079, (2022).
- 82)** T. Jaik, A. Flatae, N. Soltani, P. Reuschel, M. Agio, E. Descrovi, E. Jonas, «Photomotion of Hydrogels with Covalently Attached Azo Dye Moieties – Thermoresponsive and Non-Thermoresponsive Gels», *Gels* 8, 541 (2022).

**81)** A. L. Asilevi, H. Pesonen, E. Descrovi, M. Roussey, J. Turunen, «Pulse modulation by Bloch surface wave resonances», *Opt. Lett.* 47, 2574-2577 (2022).

## 2021

**80)** S. D. Choudhury, Y. Xiang, D. Zhang, E. Descrovi, R. Badugu, J. R. Lakowicz, «Fluorescence coupling to internal modes of 1D photonic crystals characterized by Back Focal Plane Imaging». *J. Optics* 23, 035001 (2021).

## 2020

**79)** R. Badugu, J. Mao, D. Zhang, E. Descrovi, J.R. Lakowicz, «Fluorophore coupling to internal modes of Bragg gratings», *J. Phys. Chem. C* 124, 41, 22743–22752 (2020).

**78)** A.S. Gliozzi, M. Miniaci, A. Chiappone, A. Bergamini, B. Morin and E. Descrovi, «Tunable photo-responsive elastic metamaterials» *Nat. Comm.* 11, 2576 (2020).

**77)** U. Stella, T. Grosjean, N. de Leo, L. Boarino, P. Munzert, J.R. Lakowicz, E. Descrovi, «Vortex beam generation by spin-orbit interaction with Bloch surface waves», *ACS Photonics* 7, 774-783 (2020).

## 2019

**76)** U. Stella, L. Boarino, N. de Leo, P. Munzert, E. Descrovi, «Enhanced directional light emission assisted by resonant Bloch Surface Waves in circular cavities», *ACS Photonics* 6, 2073-2082 (2019).

**75)** A. Puliafito, S. Ricciardi, F. Pirani, V. Čermochová, L. Boarino, N. de Leo, L. Primo, E. Descrovi, «Driving cells with light-controlled topographies», *Adv. Science* 6, 1801826 (2019).

**74)** D. Zhang, D. Qiu, R. Wang, L. Zhu, X. Wen, E. Yang, T. Zang, P. Wang, H. Ming, R. Badugu, U. Stella, E. Descrovi, J.R. Lakowicz, «Coupling of Fluorophores in Single Nanoapertures with Tamm Plasmon Structures», *J. Phys. Chem. C* 123, 1413-1420 (2019).

## 2018

**73)** E. Descrovi, F. Pirani, V. P. Rajamanickam, S. Licheri, C. Liberale, «Photo-responsive suspended micro-membranes», *J. Mat. Chem. C* 6, 10428-10434, (2018).

**72)** A. Angelini, F. Pirani, F. Frascella, E. Descrovi, «Reconfigurable elastomeric graded-index optical elements controlled by light», *Light: Science and Applications* 7, e18012. DOI: 10.1038/s41377-018-0005-1, (2018)

**71)** R. Rizzo, M. Alvaro, N. Danz, L. Napione, E. Descrovi, S. Schmieder, A. Sinibaldi, R. Chandrawati, S. Rana, P. Munzert, T. Schubert, E. Maillart, A. Anopchenko, P. Rivolo, A. Mascioletti, F. Sonntag, M. M. Stevens, F. Bussolino, F. Michelotti, «Bloch surface wave label-free and fluorescence platform for the detection of VEGF biomarker in biological matrices», *Sens. Act. B* 255, 2143-2150 (2018).

**70)** R. Rizzo, M. Alvaro, N. Danz, L. Napione, E. Descrovi, S. Schmieder, A. Sinibaldi, S. Rana, R. Chandrawati, P. Munzert, T. Schubert, E. Maillart, A. Anopchenko, P. Rivolo, A. Mascioletti, E. Forster, F. Sonntag, M. M. Stevens, F. Bussolino, F. Michelotti, «Bloch surface wave enhanced biosensor for the direct detection of Angiopoietin-2 tumor biomarker in human plasma», *Biomed. Opt. Express* 9, 529-542 (2018).

## 2017

**69)** F. Pirani, A. Angelini, F. Frascella, and E. Descrovi, «Reversible Shaping of Microwells by Polarized Light Irradiation», *Int. J. Polym. Sci.* 2017, 6812619, DOI:10.1155/2017/6812619 (2017)

**68)** Zhu, Liangfu; Badugu, Ramachandram; Zhang, Douguo; Wang, Ruxue; Descrovi, Emiliano; Lakowicz, Joseph R., «Radiative decay engineering 8: Coupled emission microscopy for lens free high-throughput fluorescence detection», *Anal. Biochem.* 531, 20-36 (2017)

**67)** I. Roppolo, A. Chiappone, A. Angelini, S. Stassi, F. Frascella, C. Ricciardi, E. Descrovi, «3D printable light-responsive polymers», *Mater. Horiz.* 4, 396-401 (2017).

**66)** F. Pirani, A. Angelini, S. Ricciardi, F. Frascella, E. Descrovi, «Laser-induced anisotropic wettability on azopolymeric micro-structures», *App. Phys. Lett.* 110, 101603 (2017)

**65)** F. Pirani, N. Sharma, A. Moreno-Cencerrado, S. Fossati, C. Petri, E. Descrovi, J.L. Toca-Herrera, U. Jonas, J. Dostalek, «Optical Waveguide-Enhanced Diffraction for Observation of Responsive Hydrogel Nanostructures», *Macromol. Chem. Phys.* 218, 1600400. (2017)

## 2016

- 64)** R. Badugu, A. Mao, S. Blair, D. Zhang, E. Descrovi, A. Angelini, Y. Huo and J. R. Lakowicz, «Bloch Surface Wave-Coupled Emission at Ultraviolet Wavelengths», *J. Phys. Chem. C* 120, 28727–28734 (2016)
- 63)** P. Mandracci, F. Frascella, R. Rizzo, A. Virga, P. Rivolo, E. Descrovi, F. Giorgis, «Optical and structural properties of amorphous silicon-nitrides and silicon-oxycarbides: Application of multilayer structures for the coupling of Bloch Surface Waves», *J. Non-Cryst. Solids* 453, 113-117 (2016).
- 62)** F. Pirani, A. Angelini, F. Frascella, R. Rizzo, S. Ricciardi, E. Descrovi, «Light-Driven Reversible Shaping of Individual Azopolymeric Micro-Pillars», *Sci. Rep.* 6, 31702 (2016).
- 61)** F. Frascella, C. Petri, S. Ricciardi, L. Napione, P. Munzert, U. Jonas, J. Dostalek, F. Bussolino, C.F. Pirri, E. Descrovi, «Hydrogel-Terminated Photonic Crystal for Label-Free Detection of Angiopoietin-1», *J. Lightwave Techn.* 34, 3641-3645 (2016).
- 60)** L. Pasquardini, C. Potrich, V. Vaghi, L. Lunelli, F. Frascella, E. Descrovi, C. F. Pirri, C. Pederzoli, «Smart detection of microRNAs through fluorescence enhancement on a photonic crystal», *Talanta* 150, 699-704 (2016)
- 59)** F. Frascella, A. Angelini, S. Ricciardi, F. Pirri, E. Descrovi, «Surface-relief formation in azo-polyelectrolyte layers with a protective polymer coating», *Opt. Mat. Express* 6, 444-450 (2016).

## 2015

- 58)** R. Badugu, H. Szmanski, K. Ray, E. Descrovi, S. Ricciardi, D. Zhang, J. Chen, Y. Huo and J. R. Lakowicz, «Metal-Dielectric Waveguides for High-Efficiency Coupled Emission», *ACS Phot.* 2, 810-815 (2015).
- 57)** R. Badugu, H. Szmanski, K. Ray, E. Descrovi, S. Ricciardi, D. Zhang, J. Chen, Y. Huo, and J.R. Lakowicz, J. «Fluorescence Spectroscopy with Metal-Dielectric Waveguides», *Phys. Chem. C* 119, 16245–16255 (2015).
- 56)** F. Frascella, S. Ricciardi, L. Pasquardini, C. Potrich, A. Angelini, A. Chiadò, C. Pederzoli, L. Boarino, P. Rivolo, C.F. Pirri, and E. Descrovi, «Enhanced fluorescence detection of miRNA-16 on a photonic crystal», *Analyst* DOI: 10.1039/C5AN00889A (2015).
- 55)** S. Ricciardi, F. Frascella, A. Angelini, A. Lamberti, P. Munzert, L. Boarino, R. Rizzo, A. Tommasi, E. Descrovi, «Optofluidic chip for surface wave-based fluorescence sensing», *Sens. Act. B* 215, 225-230 (2015)
- 54)** A. Lamberti, A. Virga, A. Angelini, A. Ricci, E. Descrovi, M. Cocuzza, F. Giorgis, «Metal-elastomer nanostructures for tunable SERS and easy microfluidic integration», *RSC Adv.* 5, 4404 (2015).

## 2014

- 53)** A. Angelini, A. Lamberti, S. Ricciardi, F. Frascella, P. Munzert, N. De Leo, E. Descrovi, «In-plane 2D focusing of surface waves by ultrathin refractive structures», *Opt. Lett.* 39, 6391-6394 (2014)
- 52)** M. Roussey, E. Descrovi, M. Häyrynen, A. Angelini, M. Kuitinen, S. Honkanen, «One-dimensional photonic crystals with cylindrical geometry», *Opt. Express* 22, 27236-27241 (2014).
- 51)** A. Angelini, P. Munzert, E. Enrico, N. De Leo, L. Scaltrito, L. Boarino, F. Giorgis, E. Descrovi, «Surface-Wave-Assisted Beaming of Light Radiation from Localized Sources», *ACS Photonics* 1, 612–617 (2014).
- 50)** A. Angelini, E. Barakat, P. Munzert, L. Boarino, N. De Leo, E. Enrico, F. Giorgis, H.P. Herzig, C.F. Pirri, E. Descrovi, «Focusing and Extraction of Light mediated by Bloch Surface Waves», *Sci. Rep.* 4, 5428 (2014)
- 49)** E. Descrovi, D. Morrone, A. Angelini, F. Frascella, S. Ricciardi, N. De Leo, L. Boarino, P. Rivolo, P. Munzert, F. Michelotti, F. Giorgis, «Fluorescence imaging assisted by surface modes on dielectric multilayers», *Europ. Phys. J. D* 68, 53 (2014).
- 48)** R. Badugu, E. Descrovi, J.R. Lakowicz, «Radiative decay engineering 7: Tamm state-coupled emission using a hybrid plasmonic-photonic structure», *Anal. Biochem.* 445, 1-13 (2014).

## 2013

- 47)** A. Sinibaldi, R. Rizzo, G. Figliozzi, E. Descrovi, N. Danz, P. Munzert, A. Anopchenko, F. Michelotti, «A full ellipsometric approach to optical sensing with Bloch surface waves on photonic crystals», *Opt. Express* 21, 23331 (2013).
- 46)** S. Santi, V. Musi, E. Descrovi, V. Paeder, J. Di Francesco, L. Hvozdar, P. van der Wal, H. A. Lashuel, A. Pastore, R. Neier, H.-P. Herzig, «Real-time Amyloid Aggregation Monitoring with a Photonic Crystal-based Approach», *ChemPhysChem* 14, 3476–3482 (2013). [Featured on Journal **Cover**, issue 15].

- 45)** A. Virga, P. Rivolo, F. Frascella, A. Angelini, E. Descrovi, F. Geobaldo, F. Giorgis, «Silver Nanoparticles on Porous Silicon: Approaching Single Molecule Detection in Resonant SERS Regime», *J. Phys. Chem. C* 117, 20139-20145 (2013).
- 44)** R. Badugu, K. Nowaczyk, E. Descrovi and J.R. Lakowicz, «Radiative decay engineering 6: Fluorescence on one-dimensional photonic crystals», *Anal. Biochem.* 442, 83-96 (2013). [Featured on Journal **Cover**, issue 1]
- 43)** E. Descrovi, E. Barakat, A. Angelini, N. De Leo, L. Boarino, P. Munzert, F. Giorgis, H.P. Herzig, “Leakage radiation interference microscopy”, *Opt. Lett.* 38, 3374-3376 (2013).
- 42)** A. Angelini, E. Enrico, N. De Leo, P. Munzert, L. Boarino, F. Michelotti, F. Giorgis, E. Descrovi, “Fluorescence diffraction assisted by Bloch surface waves on a one-dimensional photonic crystal”, *New J. Phys.* 15, 073002 (2013).
- 41)** M. Moretti, R. Proietti Zaccaria, E. Descrovi, M. Leoncini, C. Liberale, G. Das, and E. Di Fabrizio, “Reflection-mode TERS on Insulin Amyloid Fibrils with Top-Visual AFM Probes”, *Plasmonics* 8, 25-33 (2013).
- 40)** A. Farhang, B. Abasahl, S. Dutta-Gupta, A. Lovera, P. Mandracci, E. Descrovi, and O.J.F. Martin, “Broadband wide-angle dispersion measurements: Instrumental setup, alignment, and pitfalls”, *Rev. Sci. Instr.* 84, 033107 (2013).
- 39)** F. Frascella, S. Ricciardi, P. Rivolo, V. Moi, F. Michelotti, P. Munzert, N. Danz, L. Napione, M. Alvaro, F. Giorgis, F. Bussolino, E. Descrovi, “A Fluorescent One-Dimensional Photonic Crystal for Label-Free Biosensing Based on Bloch Surface Waves”, *Sensors* 13, 2011-2022 (2013).
- 38)** F. Michelotti, A. Sinibaldi, N. Danz, P. Munzert, E. Descrovi, “Probing losses of dielectric multilayers by means of Bloch surface waves”, *Opt. Lett.* 38, 616-618 (2013).
- 37)** K. Toma, E. Descrovi, W. Knoll, M. Toma, U. Jonas, M. Ballarini, P. Mandracci, F. Giorgis, and J. Dostálek, “Bloch surface wave-enhanced fluorescence biosensor”, *Biosens. Bioelectron.* 43, 108–114 (2013).

## 2012

- 36)** E. Descrovi, F. Frascella, M. Ballarini, V. Moi, A. Lamberti, F. Michelotti, F. Giorgis and C.F. Pirri, “Surface label-free sensing by means of a fluorescent multilayered photonic structure”, *Appl. Phys Lett.* 101, 131105 (2012).
- 35)** A. Sinibaldi, E. Descrovi, F. Giorgis, L. Dominici, M. Ballarini, P. Mandracci, N. Danz, and F. Michelotti, “Hydrogenated amorphous silicon nitride photonic crystals for improved-performance surface electromagnetic wave biosensors”, *Biomed. Opt. Express* 3, 2405 (2012).
- 34)** A. Sinibaldi, N. Danz, E. Descrovi, P. Munzert, U. Schulz, F. Sonntag, L. Dominici, and F. Michelotti, “Direct comparison of the performance of Bloch surface wave and surface plasmon polariton sensors”, *Sens. Act. B.* 174, 292 (2012).
- 33)** M. Ballarini, F. Frascella, N. De Leo, S. Ricciardi, P. Rivolo, P. Mandracci, E. Enrico, F. Giorgis, F. Michelotti, and E. Descrovi, “A polymer-based functional pattern on one-dimensional photonic crystals for photon sorting of fluorescence radiation”, *Opt. Express* 20, 6703-6711 (2012).
- 32)** M. Ballarini, F. Frascella, E. Enrico, P. Mandracci, N. De Leo, F. Michelotti, F. Giorgis, and E. Descrovi, “Bloch surface waves-controlled fluorescence emission: Coupling into nanometer-sized polymeric waveguides”, *Appl. Phys. Lett.* 100, 063305 (2012).
- 31)** A. Virga, P. Rivolo, E. Descrovi, A. Chiolerio, G. Digregorio, F. Frascella, M. Soster, F. Bussolino, S. Marchiò, F. Geobaldo and F. Giorgis, “SERS active Ag nanoparticles in mesoporous silicon: detection of organic molecules and peptide-antibody assays”, *J. Raman Spectr.* 43, 730 (2012).
- 30)** P. Rivolo, F. Michelotti, F. Frascella, G. Digregorio, P. Mandracci, L. Dominici, F. Giorgis, E. Descrovi, “Real time secondary antibody detection by means of silicon-based multilayers sustaining Bloch surface waves”, *Sens. Act. B* 161 1046 (2012).

## 2011

- 29)** M. Ballarini, F. Frascella, F. Michelotti, G. Digregorio, P. Rivolo, V. Paeder, V. Musi, F. Giorgis, and E. Descrovi, “Bloch surface waves-controlled emission of organic dyes grafted on a one-dimensional photonic crystal”, *Appl. Phys. Lett.* 99, 043302 (2011).
- 28)** F. Michelotti and E. Descrovi, “Temperature stability of Bloch surface wave biosensors”, *Appl. Phys. Lett.* 99, 231107 (2011).

**27)** L. Pallavidino, M. Liscidini, A. Virga, A. Chiodoni, E. Descrovi, J. Cos, L. Claudio Andreani, F. Geobaldo, F. Giorgis, “Synthesis of amorphous silicon/magnesia based direct opals with tunable optical properties”, *Opt. Mat.* 33, 563 (2011).

## 2010

**26)** T. Sfez, E. Descrovi, L. Yu, D. Brunazzo, M. Quaglio, L. Dominici, W. Nakagawa, F. Michelotti, F. Giorgis, O.J.F. Martin and H.P. Herzig, «Bloch surface waves in ultrathin waveguides: near-field investigation of mode polarization and propagation», *J. Opt. Soc. Am. B* 27, 1617 (2010).

**25)** A. Virga, R. Gazia, L. Pallavidino, P. Mandracci, E. Descrovi, A. Chiodoni, F. Geobaldo, F. Giorgis, “Metal-dielectric nanostructures for amplified Raman and fluorescence spectroscopy”, *Phys. Stat. Solidi C* 7, 1196 (2010).

**24)** T. Sfez, E. Descrovi, L. Yu, M. Quaglio, L. Dominici, W. Nakagawa, F. Michelotti, F. Giorgis, H.P. Herzig, “Two-dimensional optics on silicon nitride multilayer: Refraction of Bloch surface waves”, *Appl. Phys. Lett.* 96, 151101 (2010).

**23)** E. Descrovi, T. Sfez, M. Quaglio, D. Brunazzo, L. Dominici, F. Michelotti, H.P. Herzig, O.J.F. Martin, and F. Giorgis, “Guided Bloch Surface Waves on Ultrathin Polymeric Ridges”, *Nano Lett.* 10, 2087 (2010).

**22)** F. Giorgis, E. Descrovi, C. Summonte, L. Dominici and F. Michelotti, “Experimental determination of the sensitivity of Bloch Surface Waves based sensors”, *Opt. Express* 18, 8087 (2010).

**21)** F. Michelotti, B. Sciacca, L. Dominici, M. Quaglio, E. Descrovi, F. Giorgis, and F. Geobaldo, “Fast optical vapour sensing by Bloch surface waves on porous silicon membranes”, *Phys. Chem. Chem. Phys.* 12, 502 (2010).

## 2009

**20)** F. Giorgis, A. Virga, E. Descrovi, A. Chiodoni, P. Rivolo, A. Venturello, F. Geobaldo, *Phys. Stat. Solidi C* 6, 1736 (2009).

**19)** E. Descrovi, “Resonant diffraction of symmetric and antisymmetric Bloch surface waves on a corrugated periodic multilayer slab”, *Opt. Lett.* 34, 1973 (2009).

**18)** I. Soboleva, E. Descrovi, F. Giorgis, C. Summonte, A. Fedyanin, “Fluorescence emission enhanced by surface electromagnetic waves on one-dimensional photonic crystals”, *Appl. Phys. Lett.* 94, 231122 (2009).

**17)** E. Descrovi, L. Aeschmann, I. Soboleva, F. De Angelis, F. Giorgis and E. Di Fabrizio, “High Resolution Capabilities of All-Silica Cantilevered Probes for Near-Field Optical Microscopy”, *J. Nanosci. Nanotechnol.* 9, 6460 (2009).

**16)** D. Brunazzo, E. Descrovi and O. J. F. Martin, “Narrowband optical interactions in a plasmonic nanoparticle chain coupled to a metallic film”, *Opt. Lett.*, 34, 1405 (2009).

**15)** F. Michelotti, L. Dominici, E. Descrovi, N. Danz and F. Menchini, “Thickness dependence of surface plasmon polariton dispersion in transparent conducting oxide films at 1.55  $\mu\text{m}$ ”, *Opt. Lett.* 34, 839 (2009).

**14)** B. Sciacca, F. Frascella, A. Venturello, P. Rivolo, E. Descrovi, F. Giorgis and F. Geobaldo, “Doubly resonant porous silicon microcavities for enhanced detection of fluorescent organic molecules”, *Sens. and Act. B* 137, 467 (2009).

## 2008

**13)** L. C. Andreani, A. Balestreri, J. F. Galisteo-López, M. Galli, M. Patrini, E. Descrovi, A. Chiodoni, F. Giorgis, L. Pallavidino, F. Geobaldo, “Optical response with threefold symmetry axis on oriented microdomains of opal photonic crystals”, *Phys. Rev. B* 78, 205304 (2008).

**12)** T. Sfez, E. Descrovi, L. Dominici, W. Nakagawa, F. Michelotti, F. Giorgis and H.-P. Herzig, “Near-field analysis of surface electromagnetic waves in the bandgap region of a polymeric grating written on a one-dimensional photonic crystal”, *Appl. Phys. Lett.* 93, 061108 (2008).

**11)** E. Descrovi, T. Sfez, L. Dominici, W. Nakagawa, F. Michelotti, F. Giorgis and H.-P. Herzig, “Near-field imaging of Bloch surface waves on silicon nitride one-dimensional photonic crystals”, *Opt. Express* 16, 5453 (2008).

**10)** F. Giorgis, E. Descrovi, A. Chiodoni, E. Froner, M. Scarpa, A. Venturello and F. Geobaldo, “Porous silicon as efficient surface enhanced Raman scattering (SERS) substrate”, *Appl. Surf. Sci.* 254, 7494 (2008).

- 9) D. Santamaria Razo, L. Pallavidino, E. Garrone, F. Geobaldo, E. Descrovi, A. Chiodoni, F. Giorgis, "A version of Stober synthesis enabling the facile prediction of silica nanospheres size for the fabrication of opal photonic crystals", *J. Nanoparticle Research*, 10, 1225 (2008).
- 8) S. Fiorilli, P. Rivolo, E. Descrovi, C. Ricciardi, L. Pasquardini, L. Lunelli, L. Vanzetti, C. Pederzoli, B. Onida, E. Garrone, "Vapor-phase self-assembled monolayers of aminosilane on plasma-activated silicon substrates", *J. Colloid Interf. Sci.* 321, 235 (2008).
- 7) E. Descrovi, F. Giorgis, L. Dominici, and F. Michelotti, "Experimental observation of optical bandgaps for surface electromagnetic waves in a periodically corrugated one-dimensional silicon nitride photonic crystal", *Opt. Lett.* 33, 243 (2008).

## 2007

- 6) E. Descrovi, B. Sciacca, F. Frascella, F. Geobaldo, L. Dominici, and F. Michelotti, "Coupling of surface waves in highly defined one-dimensional porous silicon photonic crystals for gas sensing applications", *Appl. Phys. Lett.* 91, 241109 (2007).
- 5) E. Descrovi, C. Ricciardi, F. Giorgis, G. Léron del, S. Blaize, C. X. Pang, R. Bachelot, P. Royer, S. Lettieri, F. Gesuele, P. Maddalena, M. Liscidini, "Field localization and enhanced Second-Harmonic Generation in silicon-based microcavities", *Opt. Express* 15, 4159 (2007).
- 4) P. Tortora, E. Descrovi, L. Aeschmann, L. Vaccaro, H.-P. Herzig and R. Dandliker, "Selective coupling of HE<sub>11</sub> and TM<sub>01</sub> modes into microfabricated fully metal-coated quartz probes", *Ultramicroscopy* 107, 158 (2007).

## 2004-2005

- 3) E. Descrovi, V. Paeder, L. Vaccaro and H.-P. Herzig, "A virtual optical probe based on localized Surface Plasmon Polaritons", *Opt. Express* 13, 7017 (2005).
- 2) E. Descrovi, L. Vaccaro, L. Aeschmann, W. Nakagawa, U. Staufer and H.-P. Herzig, "Optical properties of microfabricated fully-metal-coated near-field probes in collection mode", *J. Opt. Soc. Am. A* 22, 1432 (2005).
- 1) E. Descrovi, L. Vaccaro, L. Aeschmann, W. Nakagawa, U. Staufer and H.-P. Herzig, "Collection of transverse and longitudinal fields by means of apertureless nanoprobe with different metal coating characteristics", *Appl. Phys. Lett.* 85, 5340 (2004).

### • PATENTS

- 1) GEOBALDO F., DESCROVI E., GIORGIS F., MICHELOTTI F., Dispositivo sensore di gas a struttura fotonica operante mediante onde di superficie di Bloch e relativo procedimento di fabbricazione, 2009, Italian Patent. WO/2011/058502, extended PCT/IB2010/055089  
<https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2011058502&recNum=1&maxRec=&office=&prevFilter=&sortOption=&queryString=&tab=PCT+Biblio>
- 2) DESCROVI E., GIORGIS F., ANGELINI, A., Nanostruttura fotonica per amplificazione e direzionamento di radiazione luminosa, 18/03/2014, PCT/IT2015/000069, extended CN106304847A (China)  
<https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2015140826&recNum=1&maxRec=&office=&prevFilter=&sortOption=&queryString=&tab=PCT+Biblio>

### • BOOK CHAPTERS

- 4) E. Descrovi, P. Rivolo, L. Boarino, N. De Leo, F. Giorgis, "New sensing strategies based on surface modes in photonic crystals", in *Organic & Hybrid Photonic Crystals*, Springer, ISBN 978-3-319-16579-0, 2015.
- 3) M. Ballarini, N. Danz, F. Frascella, S. Ricciardi, P. Rivolo, P. Mandracci, L. Napione, L. Dominici, A. Sinibaldi, F. Michelotti, F. Giorgis, F. Bussolino, E. Descrovi "Bloch Surface Waves on Dielectric Photonic Crystals for Biological Sensing" book chapter in *Sensors, Proceedings of the First National Conference on Sensors, Rome 15-17 February, 2012*, Lecture Notes in Electrical Engineering Volume 162 2014, pp. 107-111, Springer Science+Business Media New York 2014.
- 2) E. Descrovi, M. Ballarini, F. Frascella, in: *Encyclopedia Of Nanotechnology*; Springer Science+Business Media B.V., ISBN 978-90-481-9750-7, 2012



1) V. Chiono, E. Descrovi, S. Sartori, P. Gentile, M. Ballarini, F. Giorgis, G. Ciardelli, in: Scanning Probe Microscopy in Nanoscience and Nanotechnology 2, Springer, 2010

- **PROCEEDINGS**

21) D. Urban, D. R. Hjelme and E. Descrovi, "Polarized light guiding anisotropic deformation and relaxation in photosensitive polymeric substrates", EPJ Web of Conferences 266, 06011 (2022)

<https://doi.org/10.1051/epjconf/202226606011>

20) N. Marucci, G. Zambito, M.C. Giordano, F. Buatier de Mongeot and E. Descrovi, "Controlling resonant surface modes by arbitrary light induced optical anisotropies", EPJ Web of Conferences 266, 05008 (2022)

<https://doi.org/10.1051/epjconf/202226605008>

19) C. Eustache, A. L. Lereu, R. Salut, A. Moreau, M. A. Suarez, E. Descrovi, J. Lumeau, T. Grosjean, "Bloch surface waves on a fiber tip", Proc. SPIE PC12010, Photonic and Phononic Properties of Engineered Nanostructures XII, PC120100L, doi: 10.1117/12.2613319 (2022).

18) F. Pirani, A. Angelini, F. Frascella, S. Ricciardi, F. Ferrarese Lupi, N. De Leo, L. Boarino, and E. Descrovi "Reconfigurable 3D and 2D micro-structures array by directional laser manipulation", Proc. SPIE 10360, Light Manipulating Organic Materials and Devices IV, 103600B (2017); doi: 10.1117/12.2273223

17) F. Pirani, A. Angelini, S. Ricciardi, F. Frascella, R. Rizzo, F. Ferrarese Lupi, N. De Leo, L. Boarino, E. Descrovi, "Tunable hydrophobicity assisted by light-responsive surface micro-structures", Proc. SPIE 10092, Laser-based Micro- and Nanoprocessing XI, 100920A, doi: 10.1117/12.2251008 (2017).

16) A. Angelini, F. Pirani, F. Frascella, S. Ricciardi, E. Descrovi, "Light-driven liquid microlenses", Proc. SPIE 10106, Integrated Optics: Devices, Materials, and Technologies XXI, 1010612, doi: 10.1117/12.2250988 (2017).

15) S. Santi, E. Barakat, E. Descrovi, R. Neier, H.P. Herzig, "Real-time protein aggregation monitoring with a Bloch surface wave-based approach", Biophotonics: Photonic Solutions for Better Health Care IV, Jürgen Popp; Valery V. Tuchin; Dennis L. Matthews; Francesco S. Pavone, Editors, Proceedings of SPIE Vol. 9129 (SPIE, Bellingham, WA 2014), 912918.

14) A. Sinibaldi, R. Rizzo, A. Anopchenko, N. Danz, E. Descrovi, P. Munzert, F. Michelotti, "Exploiting the phase properties of Bloch surface waves on photonic crystals for efficient optical sensing", Proc. SPIE 9141, Optical Sensing and Detection III, 91410E (2014).

13) F. Michelotti, A. Sinibaldi, N. Danz, F. Frascella, P. Rivolo, P. Mandracci, N. De Leo, F. Giorgis, P. Munzert, U. Schultz, L. Dominici, and E. Descrovi, "Biophotonics with Bloch Surface Waves on Photonics Crystals," in Latin America Optics and Photonics Conference, OSA Technical Digest (online) (Optical Society of America, 2012), paper LS2C.4

12) M. Ballarini, F. Frascella, N. De Leo, E. Enrico, P. Rivolo, F. Michelotti, F. Giorgis, E. Descrovi, Proc. SPIE – Photonics West 2012 (San Francisco, USA) 21 January 2012, Vol. 8234, 82340S DOI: 10.1117/12.906695

11) P. Rivolo, G. Digregorio, F. Frascella, P. Mandracci, M. Ballarini, F. Giorgis, L. Dominici, F. Michelotti, International Workshop on BioPhotonics, 2011, DOI: 10.1109/IWBP.2011.5954810, 2011.

10) T. Sfez, E. Descrovi, L. Yu, D. Brunazzo and M. Quaglio et al. , IEEE Photonics Society - 23rd annual meeting, Denver, USA, November 7-11, pp. 449-450, 2010. DOI: 10.1109/PHOTONICS.2010.5698953.

9) I. V. Soboleva, E. Descrovi, L. Dominici, F. Michelotti, F. Giorgis, A. A. Fedyanin, Proc. SPIE - Optical Sensors 2009 (Prague, Czech Republic) 20 April 2009 Vol.7356, DOI:10.1117/12.820711

8) E. Descrovi, B. Sciacca, F. Frascella, F. Geobaldo, F. Giorgis, L. Dominici, F. Michelotti, In: Porous Semiconductors - Science and technology Sergraf Integral, S. L. (ESP), PSST 2008 - 6th International Conference (Mallorca (SPAIN)) 10-14/3/2008, Vol.1 pp.111 ISBN:84-608-0720-9

7) B. Sciacca, F. Frascella, C. Barolo, G. Viscardi, F. Giorgis, P. Rivolo, E. Descrovi, F. Geobaldo, In: Porous Semiconductors - Science and technology, Sergraf Integral, S. L. (ESP), PSST 2008 - 6th International Conference (Mallorca (SPAIN)) 10-14/3/2008, Vol.1 pp.115 ISBN:978-84-608-0720-9

6) F. Giorgis, A. Virga, E. Descrovi, A. Chiodoni, A. Venturello, F. Geobaldo, In: Porous Semiconductors - Science and technology, Sergraf Integral, S. L. (ESP), PSST 2008 - 6th International Conference. Mallorca (Mallorca, SPAIN) 10-14/3/2008 Vol.1 pp. 389 ISBN:978-84-608-0720-9

5) B. Sciacca, F. Frascella, A. Venturello, F. Geobaldo, P. Rivolo, E. Descrovi, F. Giorgis, EOS Annual Meeting 2008 -Biophotonics (Paris (France)) 29 September-2 October 2008, ISBN:978-3-00-024188-8

- 4)** A. Virga, E. Descrovi, F. Giorgis, F. Geobaldo, EOS Annual Meeting 2008 -TOM1 Biophotonics (Paris (France)) 29 September-2 October 2008, ISBN:978-3-00-024188-8
- 3)** E. Descrovi, B. Sciacca, F. Frascella, F. Geobaldo, F. Giorgis, L. Dominici, F. Michelotti, EOS Annual Meeting 2008, ISBN:978-3-00-024188-8
- 2)** T. Sfez, E. Descrovi, L. Dominici, W. Nakagawa, F. Michelotti, F. Giorgis, H.P. Herzig, EOS Annual Meeting 2008 (Paris (France)) 29 September-2 October 2008, ISBN:978-3-00-024188-8
- 1)** E. Descrovi, L. Vaccaro, L. Aeschmann, W. Nakagawa , U. Staufer, T. Scharf and H.-P. Herzig, Proc. SPIE, Vol. 5736, 96 (2005). DOI: 10.1117/12.589778.