Costantino De Angelis
Curriculum Vitae

Employment Record – Summary
2004–present: Full Professor of Electromagnetic Fields (University of Brescia, Brescia (Italy)), head of the Electromagnetic Fields and Photonics Group (http://nora.ing.unibs.it).

- 2016-…: Deputy of the Director of the Department of Information Engineering of the University of Brescia for the coordination of the research activities of the Department.
- 2012-2016: Deputy of the Director of the Department of Information Engineering of the University of Brescia for the coordination of the research activities of the Department.
- January 2019: appointed by University Paris Diderot as Invited Professor for lecturing on "Nonlinear Optics at the nanoscale".
- July-September 2016: appointed by the Australian National University in Canberra as Invited Professor for lecturing on "Nonlinear Optics at the nanoscale".
- July 2012: appointed by the Abbe School of Photonics in Jena as Invited Professor for lecturing on "Modeling of broadband optical pulse propagation in quadratic media".
- August 2011: appointed by the Massachusetts Institute of Technology as Invited Professor with a research proposal entitled: "Linear and Nonlinear Plasmonic Optical Circuits at the Nanoscale".
- 2010-2012: Director of the Department of Information Engineering of the University of Brescia.
- July-September 2010: appointed by the Massachusetts Institute of Technology as Invited Professor with a research proposal entitled: "Linear and Nonlinear Plasmonic Optical Circuits at the Nanoscale".

1998–2003: Associate Professor of Electromagnetic Fields (Faculty of Engineering), University of Brescia, Brescia (Italy).

1994 – 1998: Assistant Professor of Electromagnetic Fields (Faculty of Engineering), University of Padova, Padova (Italy).

- 1996-1997: Invited Senior Researcher at the University of Limoges, Limoges (France).

1993–1994: Lecturer in Nonlinear Optics, University of New Mexico (USA), Department of Mathematics and Statistics.

Education
1989: Laurea Cum Laude in Electronics Engineering (Thesis work on "Stimulated Raman Scattering in optical fibers". Supervisor: Prof. C.G. Someda).
1990-1993: Ph.D. in Electronics and Telecommunications Engineering, University of Padova ("All-optical switching in fibers and waveguides". Supervisor: Prof. C.G. Someda).

Prizes and Fellowships
1978: National finalist of the X European Philips Contest for Young Researchers and Inventors.
1989: Italian Telecom Company (SIP) Prize for the best 1989 University Degree thesis in Optical Communications at the University of Padova.
1991: Fondazione A. Gini Grant as a Visiting Scholar at the University of Arizona.
1992: University of Padova Foreign Studies Scholarship for Engineering.
2017: Fellow Member of the Optical Society for significant contributions to the field of discrete and periodic nonlinear photonic structures and to the design of nano-antennas and nonlinear nano-photonic devices.

Language skills.
Italian. Mother tongue.
English. Speaking: fluent. Listening: fluent. Writing: fluent. Reading: perfect.
French. Speaking: poor. Listening: basic. Writing: poor. Reading: good.

Funding Record, Project Management and Organization Activities

Funding record and project management:

- 2019-2022: PI of the PRIN MIUR project, Nonlinear photonics in metal-less metasurfaces (NOMEN).
- 2019-2012: PI of the CNR Joint lab project**,** Nonlinear photonics with metal-less nanoantennas and metasurfaces (OMEN).
- 2018-2021: principal investigator for the University of Brescia of EMIMEO Erasmus Master on Innovative Microwave Electronics and Optics.
- 2014-2018: principal investigator of the ERASMUS MUNDUS project *"Europe - Asia - Pacific Exchange programme in Nanophotonics"* (NANOPHI, http://nanophi.unibs.it).
- 2014-2017: PI for the University of Brescia of the CARIPLO project: "Second harmonic plasmon-enhanced sensing" **(**Cariplo *Material Science Call 2013*).
- 2011-2013: PI for the University of Brescia of the CARIPLO project: "Engineering optical non-linearities using plasmon resonances in metal-insulator metamaterials" **(**Cariplo *Material Science Call 2010*).
- 2010-2011: PI for the University of Brescia of the project "Optical waveform generators based on temporal and spectral shaping in nonlinear metamaterials", funded by the European Office of Aerospace Research and Development (2010).
- 2008-2009: PI for the University of Brescia of the MIUR (Italian Ministry of University and Research) project: "Temporal and spectral shaping of optical pulses for high resolution optical microscopy".
- 2006-2007: PI for the University of Brescia of the MIUR (Italian Ministry of University and Research) project: "Numerical and analytical modeling of parametric and photonic-bandgap devices in waveguides in surface periodically poled lithium niobate and lithium tantalate".
- 2004-2005: PI for the University of Brescia of the MIUR (Italian Ministry of University and Research) project: "Numerical and analytical modeling of parametric and photonic-bandgap devices in proton exchanged waveguides in surface periodically poled lithium niobate".
- 2002-2003: PI for the University of Brescia of the MIUR (Italian Ministry of University and Research) project: "Modeling and numerical methods of photonic devices for high capacity optical networks".
- 2001-2002: PI for the University of Brescia of the MIUR (Italian Ministry of University and Research) project: "A novel technology for the realization of parametric photonic devices in lithium niobate optical waveguides".
- 2000-2002: PI for the University of Brescia of the European Information Society Technologies Programme project: "Ultrafast all optical signal processing in engineered quadratic nonlinear waveguides".
- 1998-1999: PI for the University of Brescia of the European Information Society Technologies Programme project: "Optical routing based on quadratic spatial solitons interactions".
- 1995-1996: PI in the project: "Theory of ultrashort soliton pulse propagation in solid-state lasers". University of Arizona (USA) and Consiglio Nazionale delle Ricerche.
- 1994-1995: PI in the project "Theory of soliton propagation in long-haul fiber links". University of New Mexico (USA) and Consiglio Nazionale delle Ricerche.

Organization activities

- Management activities in research institutions
  From 2010 to 2012 CDA has served as Director of the Department of Information Engineering. The Department of Information Engineering is a research and high education unit funded by the Italian Government and by the European Union. Its research teams are strongly involved in National and European, scientific and economic developments in the fields of electromagnetism, microelectronic and micro-optic sensors, and photonics. The academic staff is composed of 56 professors and researchers with a strong commitment to teaching and research. Since November 2012 CDA has been serving as coordinator of the research activities of the Department of Information Engineering.

- Management of a research group
  Twenty years ago, CDA has been appointed by the Department of Electronics for Automation of the University of Brescia (now Department of Information Engineering) to establish a team responsible for teaching and research activities in the area of electromagnetic fields and photonics. Today the team (Electromagnetic Fields and Photonics Group, http://nora.ing.unibs.it) is well known both at the national and at the international level for its achievements in the area of Nonlinear Optics and Nanophotonic devices.
  ANVUR (the national agency for the evaluation of the research activities in Italian universities) has ranked the research group founded by CDA as the best Italian team in the area of Electromagnetic Fields for the activities carried out from 2004 to 2010 (VQR 2004-2010) and for the activities carried out from 2011 to 2014 (VQR 2011-2014).
- Management activities and mentoring of Ph.D. students
  In the last 20 years, CDA has directed the research work of several students: so far, 1 of his former students is Full Professor at the University of Brescia, 3 of his former students are Associate Professors at the University of Brescia, 1 is Associate Professor at the University of Limoges, and 1 is Research Officer at CNRS.

Scientific Leadership Profile

The research activity of CDA over the past 26 years has led to the publication of more than 170 papers on international refereed journals, over 200 contributions at international conferences, including more than 30 invited presentations. Some of his papers have contributed to the early stage of new research developments in the field of discrete nonlinear photonic periodic structures and related devices.

His early work was dedicated to conceiving and demonstrating novel all-optical signal processing devices. His analysis was based on applying the concepts and methods of discrete nonlinear dynamical systems to the analysis of guided wave propagation in evanescently coupled optical waveguides and periodic dielectrics. This enabled the use of powerful and yet simple analytical tools, which permit to characterize the qualitative behaviour and stability domains of the various interacting optical waves. In this context, his early innovations in the field of nonlinear photonics include the prediction of multidimensional solitons and energy localization (simultaneously in space and in time) in fiber arrays in the presence of cubic nonlinearity [1, 2].
The analytical description of optical signal interactions in nonlinear systems was then extended to the field of second order nonlinearities and in particular to periodic dielectrics, where the periodicity may entail the linear and/or nonlinear properties of the device. In this context, his early innovations in the field include the prediction and the first experimental observation of quadratic spatial solitons in periodically poled lithium niobate [3]. In this framework CDA participated (as PI for the University of Brescia) in the European project ROSA, whose main objective was to demonstrate the performance of a new modular concept for fast all-optical switching, wavelength conversion, regeneration and routing of data by using parametric interactions in quadratic nonlinear waveguides. The concepts have been implemented in low loss lithium niobate waveguides, manufactured by indiffusion, where engineered periodic poling can control the features of the nonlinearity. Although propagation of light in the vicinity of an interface between two nonlinear dielectrics has been widely studied in the past four decades, CDA and co-workers were the first to experimentally demonstrate, using periodically poled lithium niobate samples, nonlinear Snell laws at a phase-mismatched nonlinear interface [4]. Within the framework of quadratically nonlinear media, the quasi-phase-matching technique has been in fact exploited to produce engineered nonlinear structures. This has opened a whole range of new possibilities that have become experimentally feasible with the progress of reproducible fabrication of periodically poled lithium niobate. Engineered quasi-phase-matched patterns hold now great promise to facilitate beam and pulse shaping effects with a variety of applications in several areas of modern science and technology (for example, the coherent control of chemical reactions by temporal shaping of laser pulses; new instruments for revealing structural dynamics in ultrafast biological reactions; devices per Optical Code Division Multiple Access).
Periodic structures have been also investigated by CDA and co-workers as a suitable mean to enhance second-harmonic generation (SHG) in nonlinear media, where the concept of quasi-phase matching has proven to be a very useful one in order to enhance nonlinear conversion. Resonant SHG in Bragg multilayers, which can also be viewed as finite one dimensional (1D) photonic crystals, takes place when the pump and/or harmonic waves are resonant with band-edge states that are formed in the finite structure and

phase matching occurs when the pump beam is tuned to the first band-edge resonance of the *m*th order stop band and the harmonic beam is tuned to the second resonance of the 2*m*th order stop band; under these conditions, CDA and co-workers were the first to predict SHG efficiency to scale like the sixth power of the device length, a prediction that was confirmed experimentally two years later in aluminium gallium arsenide multilayers [5, 6 and references therein].
CDA and co-workers where the first to predict that, in stark contrast to the conventional case, in photonic crystal waveguide arrays diffraction can be tailored both in magnitude and sign by varying only the spacing between adjacent waveguides, thus allowing to implement diffraction engineering and self collimation [7].
CDA and co-workers also applied optimum control theory algorithms for properly designing aperiodically poled nonlinear crystals to generate optical pulses of the desired amplitude, phase profile, and carrier wavelength [8].
CDA research activity has been also devoted to the field of nanooptics and optical antennas where among the main contributions it is worth quoting the papers where CDA and co-workers have been able to extend some of the basic theoretical tools of radio frequency into the optical domain. In particular in [9] CDA and co-workers have shown for the first time how Pocklington's equation can be conveniently extended into the optical domain to provide a simple and powerful theoretical model in the nanoantennas design process. This work has been recently extended into the field of nonlinear optics at the nanoscale, where CDA and co-workers have recently demonstrated the possibility of new sensing devices based on second harmonic generation in nanoparticles [10].
CDA and co-workers have also focused their interest on the remarkable properties of graphene in silicon based integrated circuits. The research has been mainly devoted to the analytical modelling of graphene layers into optical waveguides: in [11] CDA and co-workers have described nonlinear guided waves sustained by the remarkable nonlinearity of graphene at optical frequencies; the analytical approach introduced there for the first time is expected to help in opening new scenarios for graphene applications in photonics. In [12] CDA and co-workers have discussed silicon-graphene photonics as a remarkable platform for the efficient modulation in the terahertz spectral region.
My recent activity on nonlinear optics at the nanoscale [13, 14, 15] has paved the way into a new field of modern optics, i.e. the use and control of second order nonlinear effects for efficient frequency conversion at the nanoscale. Here, together with my co-workers, I have first theoretically predicted [13] and then experimentally demonstrated [14] the possibilities offered by zinc blende semiconductors which have introduced a paradigm shift in this domain. The field is now also quickly entering into applications where we also contributed to propose new strategies for innovative devices for imaging and sensing [15].

Synopsis of main current research interests:

- Nonlinear Optics: areas of interest include soliton propagation sustained by second and third order nonlinear effects, submicron structuring of domain inverted ferroelectric based devices (in particular PPLN), harmonic generation and frequency conversion in periodic structures, with an emphasis on second harmonic generation.
- Nanophotonics and optical antennas: areas of interest include novel photonic crystal based devices for telecommunications and sensing applications, negative index materials, photonic crystal fibers design and characterization, optical nanowires, optics of metals, computational electromagnetism.
- Graphene photonics: areas of interest include the modelling of integrated optical circuits where silicon photonics could take advantage of the remarkable (and tunable) linear and nonlinear properties of graphene at optical frequencies.

Since 1994, CDA is referee for several international journals (APS, IEEE and OSA). Since 1998 CDA has served as a referee for several funding institutions (Israel Science Foundation; INFM (National Institute for the Physics of Matter); New EURASIA Foundation; MIUR (Italian Ministry of University and Research)).
Searching his cited publications on Scopus yields: **H-INDEX: 29. Total Cites: 3599.**

[1] A. B. Aceves, C. De Angelis, A. M. Rubenchik, S. K. Turitsyn, *Opt. Lett.* **19**, pp. 329-331, 1994.
[2] A. B. Aceves, C. De Angelis, T. Peschel, R. Muschall, F. Lederer, S. Trillo, S. Wabnitz, *Phys. Rev. E* **53B**, pp. 1172-1189, 1996.
[3] B. Bourliaguet, V. Couderc, A. Barthelemy, G. W. Ross, P. G. R. Smith, D. C. Hanna, C. De Angelis, *Opt. Lett.* **24**, pp. 1410-1412, 1999.
[4] F. Baronio, C. De Angelis, P. Pioger, V. Couderc, A. Barthelemy, *Opt. Lett.* **29**, pp. 986-988, 2004.

[5] C. De Angelis, F. Gringoli, M. Midrio, D. Modotto, J. S. Aitchison, G. F. Nalesso, *Journal of the Optical Society of America B* **18**, pp. 348-351, 2001.
[6] M. Liscidini, A. Locatelli, L. C. Andreani, C. De Angelis, *Phys. Rev. Lett.* **99**, pp. 053907(1-4), 2007.
[7] A. Locatelli, M. Conforti, D. Modotto, C. De Angelis, *Opt. Lett.* **30**, pp. 2894-2896, 2005.
[8] M. Conforti, F. Baronio, C. De Angelis, *Opt. Lett.* **32**, pp. 1179-1781, 2007. M. Marangoni, G. Sanna, D. Brida, M. Conforti, G. Cirmi, C. Manzoni, F. Baronio, P. Bassi, C. De Angelis, G. Cerullo, *Applied Phys. Lett.* **93**, pp. 021107-1-3, 2008.
[9] A. Locatelli, C. De Angelis, D. Modotto, S. Boscolo, F. Sacchetto, M. Midrio, A. D. Capobianco, F. M. Pigozzo, C. G. Someda, "Modeling of enhanced field confinement and scattering by optical wire antennas", *Optics Express* **17**, pp. 16792-16800, 2009. C. De Angelis, A. Locatelli, D. Modotto, S. Boscolo, M. Midrio, A. D. Capobianco, "Frequency addressing of nano-objects by electrical tuning of optical antennas", *Journal of the Optical Society of America B* **27**, pp. 997-1001, 2010.
[10] M. Celebrano, X. Wu, M. Baselli, S. Grossman, P. Biagioni, A. Locatelli, C. De Angelis, G. Cerullo, R. Osellame, B. Hecht, L. Duò, F. Ciccacci, M. Finazzi, "Mode-matching in multiresonant plasmonic nanoantennas for enhanced second harmonic generation", *Nature Nanotechnology*, **10**, pp. 412–417, 2015.
[11] A. Auditore, C. De Angelis, A. Locatelli, S. Boscolo, M. Midrio, M. Romagnoli, A. D. Capobianco, G. Nalesso, "Graphene sustained nonlinear modes in dielectric waveguides", *Optics Letters* **38,** pp. 631-633, 2013.
[12] A. Locatelli, G. Town, C. De Angelis, "Graphene-based terahertz waveguide modulators", *IEEE Transactions* on Terahertz Science and Technology, invited paper, 5, pp. 351–357, 2015.
[13] L. Carletti, A. Locatelli, O. Stepanenko, G. Leo, C. De Angelis, "Enhanced second-harmonic generation from magnetic resonance in AlGaAs nanoantennas," *Optics Express* 23, p. 26544, 2015.
[14] V. F. Gili, L. Carletti, A. Locatelli, D. Rocco, M. Finazzi, L. Ghirardini, I. Favero, C. Gomez, A. Lemaître, M. Celebrano, C. De Angelis, and G. Leo, "Monolithic AlGaAs second-harmonic nanoantennas," *Optics Express* 24, 15965, 2016.
[15] L. Carletti, K. Koshelev, C. De Angelis, Y. Kivshar, "Giant Nonlinear Response at the Nanoscale Driven by Bound States in the Continuum," *Physical Review Letters*, vol. 121, 033903 (2018).

Selected Publications

1. G. S. Mauro, A. Locatelli, G. Torrisi, L. Celona, C. De Angelis, G. Sorbello, "Woodpile EBG waveguide as a DC electrical break for microwave ion sources, Microw Opt Technol Lett., 1-5 (2018).
2. D. Rocco, M. A. Vincenti, C. De Angelis, "Boosting Second Harmonic Radiation from AlGaAs Nanoantennas with Epsilon-Near-Zero Materials," *Appl. Sci*, *8*(11), 2212, (2018).
3. M. Rahmani, G. Leo, I. Brener, A. V. Zayats, S. A. Maier, C. De Angelis, H. Tan, V. F. Gili, F. Karouta, R. Oulton, K. Vora, M. Lysevych, I. Staude, L. Xu, A. E. Miroshnichenko, C. Jagadish, D. N. Neshev, "Nonlinear frequency conversion in optical nanoantennas and metasurfaces: materials evolution and fabrication", vol. 1, 180021-1 (2018).
4. L. Carletti, G. Marino, L. Ghirardini, V. F. Gili, D. Rocco, I. Favero, A. Locatelli, A. V. Zayats, M. Celebrano, M. Finazzi, G. Leo, C. De Angelis, D. N. Neshev, "Nonlinear Goniometry by Second-Harmonic Generation in AlGaAs Nanoantennas," *ACS Photonics,* DOI: 10.1021/acsphotonics.8b00810 (2018).
5. M. Scalora, M. A. Vincenti, D. de Ceglia, N. Akozbek, M. J. Bloemer, C. De Angelis, J. W. Haus, R. Vilaseca, J. Trull, C. Cojocaru, "Harmonic generation from metal-oxide and metal-metal boundaries", Physical Review A, vol. 98, 023837 (2018).
6. V. F. Gili, L. Ghirardini, D. Rocco, G. Marino, I. Favero, I. Roland, G. Pellegrini, L. Duò, M. Finazzi, L. Carletti, A. Locatelli, A. Lemaître, D. Neshev, C. De Angelis, G. Leo, M. Celebrano, "Metal–dielectric hybrid nanoantennas for efficient frequency conversion at the anapole mode," Beilstein J. Nanotechnol., 9: 2306–2314, doi: 10.3762/bjnano.9.215 (2018).
7. L. Ghirardini, G. Marino, V. F. Gili, I. Favero, D. Rocco, L. Carletti, A. Locatelli, C. De Angelis, M. Finazzi, M. Celebrano, D. N. Neshev, G. Leo, "Shaping the Nonlinear Emission Pattern of a Dielectric Nanoantenna by Integrated Holographic Gratings", Nano Lett. 18, 6750−6755 (2018).
8. C. P. T. McPolin, G. Marino, A. V. Krasavin, V. Gili, L. Carletti, C. De Angelis, G. Leo, A. V. Zayats, "Imaging Electric and Magnetic Modes and Their Hybridization in Single and Dimer AlGaAs Nanoantennas," Advanced Optical Materials, 1800664 (2018).
9. L. Carletti, K. Koshelev, C. De Angelis, Y. Kivshar, "Giant Nonlinear Response at the Nanoscale Driven by Bound States in the Continuum," Physical Review Letters, vol. 121, 033903 (2018).

10. S. Danesi, M. Gandolfi, L. Carletti, N. Bontempi, C. De Angelis, F. Banfi, I. Alessandri, “Photo-induced heat generation in non-plasmonic nanoantennas,” Physical Chemistry Chemical Physics, vol. 20, pp. 15307–15315 (2018).
11. D. Rocco, V. F. Gili, L. Ghirardini, L. Carletti, I. Favero, A. Locatelli, G. Marino, D. N. Neshev, M. Celebrano, M. Finazzi, G. Leo, C. De Angelis, "Tuning the second-harmonic generation in AlGaAs nanodimers via non-radiative state optimization", Photonics Research vol. 6, B6 (2018).
12. H. Chen, V. Corboliou, A.S. Solntsev, D.-Y. Choi, M. A. Vincenti, D. de Ceglia, C. De Angelis, Y. Lu, D. N. Neshev, “Enhanced second-harmonic generation from two-dimensional MoSe2 on a silicon waveguide,” Light: Science & Applications, vol. 6, page e17060 doi:10.1038/lsa.2017.60 (2017).
13. G. Della Valle, B. Hopkins, L. Ganzer, T. Stoll, M. Rahmani, S. Longhi, Y. S. Kivshar, C. De Angelis, D. N. Neshev, G. Cerullo, “Nonlinear Anisotropic Dielectric Metasurfaces for Ultrafast Nanophotonics,” ACS Photonics vol. 4, 2129 (2017).
14. M. Baselli, A. L. Baudrion, L. Ghirardini, G. Pellegrini, E. Sakat, L. Carletti, A. Locatelli, C. De Angelis, P. Biagioni, L. Duò, M. Finazzi, P. M. Adam, M. Celebrano, “Plasmon-Enhanced Second Harmonic Generation: from Individual Antennas to Extended Arrays,” Plasmonics, vol. 12, 1595 (2017).
15. D. Rocco, L. Carletti, A. Locatelli, C. De Angelis, "Controlling the directivity of all-dielectric nanoantennas excited by integrated quantum emitters," J. Opt. Soc. Am. B, vol. 34, p. 1918 (2017).
16. V. F. Gili, L. Carletti, F. Chouchane, G. Wang, C. Ricolleau, D. Rocco, A. Lemaître, I. Favero, L. Ghirardini, M. Finazzi, M. Celebrano, C. De Angelis, G. Leo, “Role of the substrate in monolithic AlGaAs nonlinear nanoantennas,” DOI 10.1515/nanoph-2017-0026 (2017).
17. M. Guasoni, L. Carletti, D. Neshev, C. De Angelis, “Theoretical Model for Pattern Engineering of Harmonic Generation in All-Dielectric Nanoantennas.” IEEE Journal of Quantum Electronics 53 (3): 1–5. doi:10.1109/JQE.2017.2697973 (2017).
18. L. Carletti, D. Rocco, A. Locatelli, C. De Angelis, V. F. Gili, M. Ravaro, I. Favero, et al., “Controlling second-harmonic generation at the nanoscale with monolithic AlGaAs-on-AlOx antennas,” Nanotechnology, vol. 28, no. 11, p. 114005 (2017).
19. M. A. Vincenti, D. de Ceglia, C. De Angelis, M. Scalora, “Surface-Plasmon Excitation of Second-Harmonic Light: Emission and Absorption.” Journal of the Optical Society of America B 34 (3): 633. doi:10.1364/JOSAB.34.000633 (2017).
20. L. Ghirardini, L. Carletti, V. Gili, G. Pellegrini, L. Duò, M. Finazzi, D. Rocco, A. Locatelli, C. De Angelis, I. Favero, M. Ravaro, G. Leo, A. Lemaitre, M. Celebrano,“Polarization properties of second-harmonic generation in AlGaAs optical nanoantennas,” Optics Letters, vol. 42, no. 3, p. 559 (2017).
21. R. Camacho-Morales, M. Rahmani, S. Kruk, L. Wang, L. Xu, D. A. Smirnova, A. S. Solntsev, A. Miroshnichenko, H. Hoe Tan, F. Karouta, S. Naureen, K. Vora, L. Carletti, C. De Angelis, C. Jagadish, Y. S. Kivshar, D. N. Neshev, “Nonlinear Generation of Vector Beams From AlGaAs Nanoantennas,” Nano Letters 16, pp. 7191–7197 (2016).
22. V. F. Gili, L. Carletti, A. Locatelli, D. Rocco, M. Finazzi, L. Ghirardini, I. Favero, C. Gomez, A. Lemaître, M. Celebrano, C. De Angelis, and G. Leo, “Monolithic AlGaAs second-harmonic nanoantennas,” Optics Express 24, 15965 (2016).
23. L. Carletti, A. Locatelli, D. Neshev, and C. De Angelis, “Shaping the Radiation Pattern of Second-Harmonic Generation from AlGaAs Dielectric Nanoantennas,” ACS Photonics 3, pp. 1500-1507 (2016).
24. C. De Angelis, A. Locatelli, A. Mutti, A. Aceves, “Coupling dynamics of 1D surface plasmon polaritons in hybrid graphene systems,” Optics Letters 41, pp. 480-483 (2016).
25. N. Bontempi, L. Carletti, C. De Angelis, I. Alessandri, “Plasmon-free SERS detection of environmental CO2 on TiO2 surfaces,” Nanoscale 8, pp. 3226–3231 (2016).
26. L. Carletti, A. Locatelli, O. Stepanenko, G. Leo, C. De Angelis, “Enhanced second-harmonic generation from magnetic resonance in AlGaAs nanoantennas,” *Optics Express* **23**, p. 26544 (2015).
27. M. Celebrano, X. Wu, M. Baselli, S. Grossman, P. Biagioni, A. Locatelli, C. De Angelis, G. Cerullo, R. Osellame, B. Hecht, L. Duò, F. Ciccacci, M. Finazzi, “Mode-matching in multiresonant plasmonic nanoantennas for enhanced second harmonic generation”, *Nature Nanotechnology*, **10**, pp. 412–417 (2015).
28. A. Locatelli, G. Town, C. De Angelis, “Graphene-based terahertz waveguide modulators”, *IEEE Transactions on Terahertz Science and Technology*, invited paper, **5**, pp. 351–357 (2015).
29. C. De Angelis, D. Modotto, A. Locatelli, S. Wabnitz, “Optical guided wave switching,” Springer Series in Optical Sciences, 194, pp. 71-104 (2015).
30. D. de Ceglia, M. A. Vincenti, C. De Angelis, A. Locatelli, J. W. Haus, and M. Scalora, “Role of antenna modes and field enhancement in second harmonic generation from dipole nanoantennas,” *Optics Express*, vol. 23, pp. 1715-1729 (2015).
31. A. Locatelli, A.-D. Capobianco, G. Nalesso, S. Boscolo, M. Midrio, C. De Angelis, “Graphene based electro-optical control of the beat length of dielectric couplers”, Optics Communications **318**, pp. 175–179 (2014).
32. S. Dal Conte, M. Conforti, D. Petti, E. Albisetti, S. Longhi, R. Bertacco, C. De Angelis, G. Cerullo, and G. Della Valle, “Disentangling electrons and lattice nonlinear optical response in metal-dielectric Bragg filters”, PHYSICAL REVIEW B **89**, 125122 (2014).

33. A. Locatelli, D. Modotto, C. De Angelis, S. Boscolo, M. Midrio, and A.D. Capobianco, “Design of fully printed omnidirectional CRLH loop antennas for WLAN technology”, MICROWAVE AND OPTICAL TECHNOLOGY LETTERS 56, pp. 1405-1408 (2014).
34. A.-D. Capobianco, A. Locatelli, C. De Angelis, S. Boscolo, and M. Midrio, “Finite-Difference Beam Propagation Method for Graphene-Based Devices”, *IEEE PHOTONICS TECHNOLOGY LETTERS* **26**, pp. 1007-1010 (2014).
35. A. Auditore, M. Conforti, C. De Angelis, A. B. Aceves, “Dark-Antidark Solitons in Waveguide Arrays with Alternating Positive-Negative Couplings”, *Optics Communications* **297**, pp. 125–128 (2013).
36. A. Auditore, C. De Angelis, A. Locatelli, A. B. Aceves, “Tuning of surface plasmon polaritons beat length in graphene directional couplers”, *Optics Letters* **38**, pp. 4228-4231 (2013).
37. A. Cacciatori, D. Modotto, S. Boscolo, M. Midrio, A. Locatelli, C. De Angelis, Z. M. Kovacs-Vajna, “Broadband Printed Directional Bow-Tie Antenna for the 500-1600-MHz Band”, Microwave and Optical Technology Letters **55**, pp. 2329-2333 (2013).
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