

Reconfigurable Nonlinear Photonic Metasurfaces

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Abstract

Optically resonant metasurfaces are an emerging and promising area of nanophotonics. Recently, active tuning of the linear response and nonlinear effects of these components have received an increasing amount of interest. However, so far, these research directions have remained separated with only few sporadic works that study their combination beginning to appear in the literature. The evolution of nonlinear metasurfaces toward reconfigurable and dynamic components could potentially answer the demand of integrated on-chip components that realize essential functionalities such as sum and difference frequency generation, active switching, optical isolation, and all-optical routing. I will present here our recent investigations in this field

11:30 a.m. - Monday October 17, 2022

CNST@Polimi Monday Talk (in presence and online) - [Join the Meeting](#)



About the speaker

Costantino De Angelis is full Professor of Electromagnetic Fields (University of Brescia, Brescia (Italy)), head of the Electromagnetic Fields and Photonics Group (<http://costantino-de-angelis.unibs.it>).

The research activity of Prof. De Angelis has led to the publication of more than 200 papers on international refereed journals, over 200 contributions at international conferences, including more than 40 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.

Prof. De Angelis research activity spans over several aspects of Optics and Photonics, including soliton propagation sustained by second and third order nonlinear effects; submicron structuring of domain inverted ferroelectric based devices; harmonic generation and frequency conversion in periodic structures; modelling of integrated optical circuits in 2D materials; optical antennas, metasurfaces, novel photonic crystal based devices for telecommunications and sensing applications, optics of metals, computational electromagnetism.

In 2017 Prof. De Angelis has been nominated *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.

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