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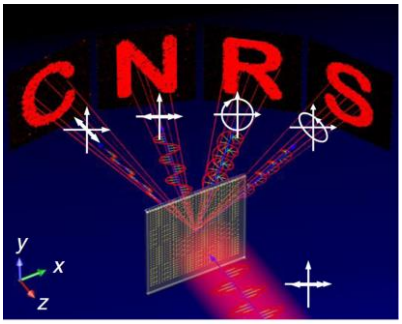
CV/ biography

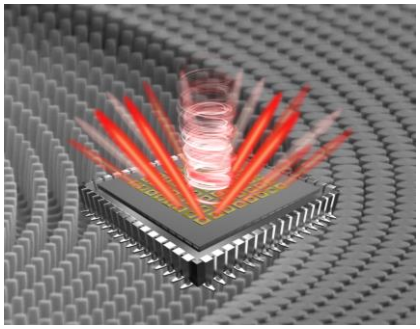
Patrice Genevet received his Ph. D. degree at the université Côte d'Azur, France in 2009 on localized spatial solitons in semiconductor lasers and amplifiers.He did five years as a research fellow (2009– 2014) in the Capasso group (SEAS, Harvard University) in collaboration with Prof. Scully (Texas A& M University). In 2014, he obtained the position of senior research scientist at A∗STAR, Singapore. In 2015, He joined CNRS as permanent 'Chargé de Recherche'.He is the recipient of the 2017 Aimé-Cotton Price from the French Physical Society, the ERC starting Grant 2015 on Functional flat optical components and applications and the 2019 ERC proof of Concept. P. Genevet research activities concern the development of optical metamaterials, metasurfaces and their applications.

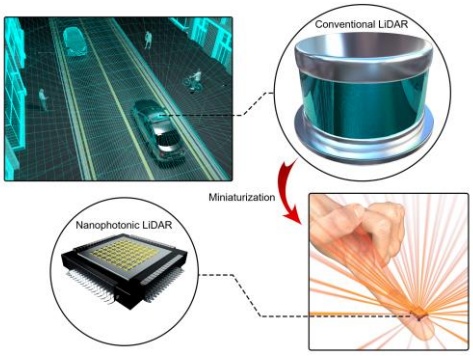
APPLICATIONS OF METASURFACES

A class of planar and wavelength-thick optical components exhibiting exceptional optical properties have emerged in recent years. These artificial interfaces, known as metasurfaces, can manipulate the wavefront of light in almost any desired manner, leveraging on the scattering properties of the subwavelength nanostructures. Currently, this technology is creating new application opportunities and efforts to realize dynamic tuning, broadband applications and industrial production are proposed.

In this presentation, I will discuss basic designs and fabrication methods of metasurfaces and summarize various applications for beam steering, polarization control and monolithic integration of metasurfaces in opto-electronic systems. As an alternative of conventional bulky, the development of this technology is expected to create a positive disruption in modern optical technologies, in particular in the fields of imaging, holography, 3D dynamic image rendering, AR/VR and LiDAR systems.







Keywords: Nanophotonics, metamaterials, metasurfaces, LiDAR, Vectorial Beam shaping, holography