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Purdue OSA-SPIE Webinar Series

July 15, 11:00am ET

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Event Password: 405478

Speaker: Prof. Marco Liscidini

Generation of nonclassical light in linear and nonlinear photonic molecules



Abstract:

Integrated micro- and nanostructures allow for the efficient generation of photon pairs via parametric fluorescence thanks to the enhancement of the light-matter interaction associated with the spatial and temporal light confinement. These systems grant an unprecedented control over the properties of the generated non-classical light, for the field enhancement can be engineered to enhance or suppress specific nonlinear processes. A particularly interesting case is that of the generation of photon pairs in structures composed of several resonators, whose interactions can be control at the linear and nonlinear level, granting the necessary flexibility to engineer the desired quantum state. In this talk will discuss the latest progresses in the generation of photon pairs in integrated devices from two-photon states in linearly uncoupled resonators to bright squeezed light in nanophotonic molecules.

About the Speaker:

Marco Liscidini received the Ph.D. degree in physics from the University of Pavia (Italy) 2006. From 2007 to 2009, he was Post-Doctoral Fellow in the group of Prof. J. E. Sipe at the Department of Physics of the University of Toronto, Canada. He is currently Associate Professor at the Department of Physics of the University of Pavia, and he serves as technical advisor to Xanadu Quantum Technologies Inc, Toronto, Canada. His research activity is focused on the theoretical study and modelling of the light-matter interaction in micro- and nano-structures. He works in several areas of photonics, including classical and quantum nonlinear optics, spontaneous emission, plasmon and QW-exciton polaritons, optical sensing and bio-sensing, and photovoltaic effects. His theoretical research activity is in strong collaboration with experimental groups and in the framework of national, European, US, and Canadian research programs.