Contribution ID: **46** Type: **not specified**

Reconfigurable High-Power Vectorial Beams Based on Disordered Optical Metasurfaces

Wednesday 29 January 2025 10:06 (12 minutes)

Light possesses spatiotemporal characteristics, including amplitude, phase, polarization, and frequency, making it a complete energy and information carrier. As such, we must understand how and to what extent we can manipulate light so that we can use it for applications like optical microscopy, laser-induced nuclear fusion, and material processing. Optical metasurfaces are incredibly useful tools for structuring light, but they face major limitations when working with high-power beams. In this work, we will start by studying the effects of metasurfaces with a random profile on scalar beams and then move to the vectorial case. We will propose a novel design that is capable of multifunctional vectorial shaping, which promises to reduce the production cost of fabricating optical metasurfaces adequate for high-power beam shaping. As a result, we hope to make applications that depend on high-power structured light more accessible.

Primary author: NUNES, Maria Inês (Instituto Superior Técnico)

Presenter: NUNES, Maria Inês (Instituto Superior Técnico)