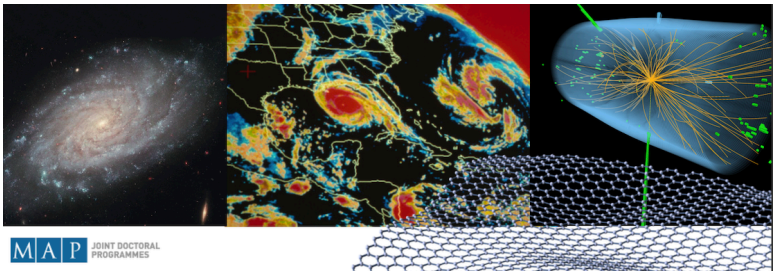

Contribution ID: **160** Type: **Contributed Talk (20 minutes)**

Fiber-Integrated 3D Nanoprinted Antiresonant Hollow-Core Waveguide for Optofluidics Applications

Guiding light in hollow core waveguides is a key direction in fiber optics, offering transformative applications. Yet, fabrication limits have prevented their full use in planar systems. Here, we introduce a fiber-integrated hollow-core waveguide that apply the antiresonant guiding principle to planar technology through 3D nanoprinting. High-aspect-ratio structures are printed directly on fiber end faces, enabling seamless integration, polarization-independent transmission, and reduced losses. Experiments, simulations, and models show strong agreement. We further demonstrate optofluidic applications, including precise refractive index sensing and absorption spectroscopy. This compact platform opens opportunities in biomedicine, quantum optics, and environmental monitoring.

Which topic best fits your talk?

Optics and Photonics

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Presenter: Ms PEREIRA, Diana (i3N - Universidade de Aveiro & Leibniz Institute of Photonic Technology - Germany)