ICFO



INSIGHT SEMINAR: Twisted optical fibres as photonic topological insulators

ANTON SOUSLOV

March 26, 2026
12:00 to 13:00
Elements Room

A challenge in photonics is to create a scalable platform in which topologically protected light can be transmitted over large distances. I will talk about the design, modelling, and fabrication of photonic crystal fibre (PCF) characterised by topological invariants. I will first focus on the phenomenology of a fibre that hosts a one-dimensional Su-Schrieffer-Heeger (SSH) chain [1]. I will then present our work on twisted fibre, which breaks an effective time-reversal symmetry. In turn, this enables a two-dimensional topological invariant called a Chern number, leading to a fibre with chiral edge states [2]. Finally, I will briefly mention our most recent theoretical work on non-Hermitian topology in fibre.

[1] Roberts et al. Sci. Adv.8, eadd3522 (2022).
[2] Roberts et al. arXiv:2411.13064. Nature Photonics (in press, 2026)

** If you require an accommodation to participate in this event due to a disability, please contact the Events Team at events@icfo.eu as soon as possible.

Hosted by: Prof. Dr. Darrick Chang