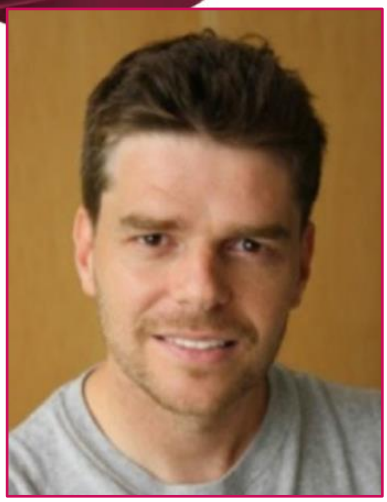
Miércoles 10 de MAYO 2023

12.00 h
Sala de Grados
Facultad de Ciencias

INMA Impulso



Nanooptics in 2D materials

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Van der Waals (vdW) materials have recently attracted considerable attention due to their ability to support nanolight (polaritons) with unique properties, such as hyperbolic dispersion, negative phase velocity, or extreme confinement. In particular, the biaxial vdW semiconductor α-phase molybdenum trioxide (α-MoO3) has received much attention due to its ability to support in-plane hyperbolic phonon polaritons (PhPs) —infrared (IR) light coupled to lattice vibrations in polar materials— with ultra-low losses, offering an unprecedented platform for controlling the flow of energy at the nanoscale.

In this seminar, I will show experimental demonstrations of the unique behavior of PhPs in these crystals, including the visualization of anomalous cases of the fundamental optical phenomena of refraction and reflection, and the exotic phenomenon of canalization, in which PhPs propagate along a single direction with ultralow losses when two biaxial slabs are rotated at a critical angle (Twistoptics).

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