

Abstract Submitted
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Transparent Conductive Oxides as Near-IR Plasmonic Materials for Energy Conversion ARRIGO CALZOLARI, CNR-NANO-S3, ALICE RUINI, Università' di Modena e Reggio Emilia, ALESSANDRA CATELLANI, CNR-NANO-S3, MARCO BUONGIORNO NARDELLI, University of North Texas — Using first principles calculations, we investigate the origin of near-infrared plasmonic activity in M-doped ZnO, one of the most promising transparent conductive oxide (TCO) materials. Our results [1-2] predict realistic values for the plasma frequency and the free electron density as a function of the M-doping, in agreement with recent experimental results. Then we characterize the plasmon properties of In-doped nanowires that have been envisaged as plasmonic nanoparticles for energy conversion applications.

- [1] A. Calzolari, et al., ACS Photonics 1, 703 (2014).
- [2] M. Bazzani, et al., APL. 98, 121907 (2011)

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