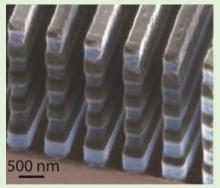


Valentine Research Lab @ Vanderbilt University Nanoscale Optics: Metamaterials and Plasmonics

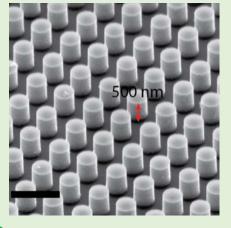


Novel Optical Properties

Zero Refractive Index

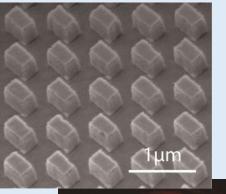


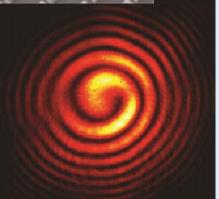
Perfect Reflectors



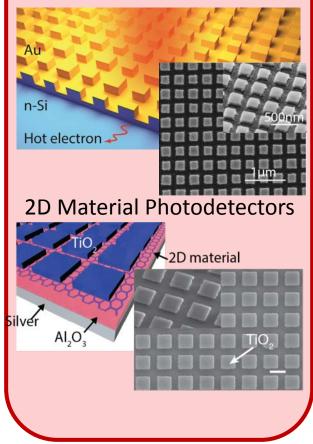
Ultra-thin Optical Elements with Complex Functionality

> Highly Efficient Vortex Beam Generation





Novel Photodetector Architectures Hot Electron Photodetectors (sub-band gap detection)



References (left to right): Moitra, et. al. Nat. Phot (2013), Moitra, et. al. APL (2014), Yang, et. al. Nano Lett. (2014), Li, et. al. Nano Lett. (2014), Wang, et. al. APL (2015)