

Modern nanofabrication methods have enabled us to build nanophotonic devices and networks that generate, detect, guide, and confine light inside regions with sub-wavelength dimensions. In addition to miniaturization, this approach enables new functionalities, such as ultra-low threshold lasing, fast direct modulation speed, and harnessing of quantum effects needed to implement quantum technologies for secure long distance communications. Moreover, such small footprint devices can be embedded inside living cells to track intra-cellular processes in real time.