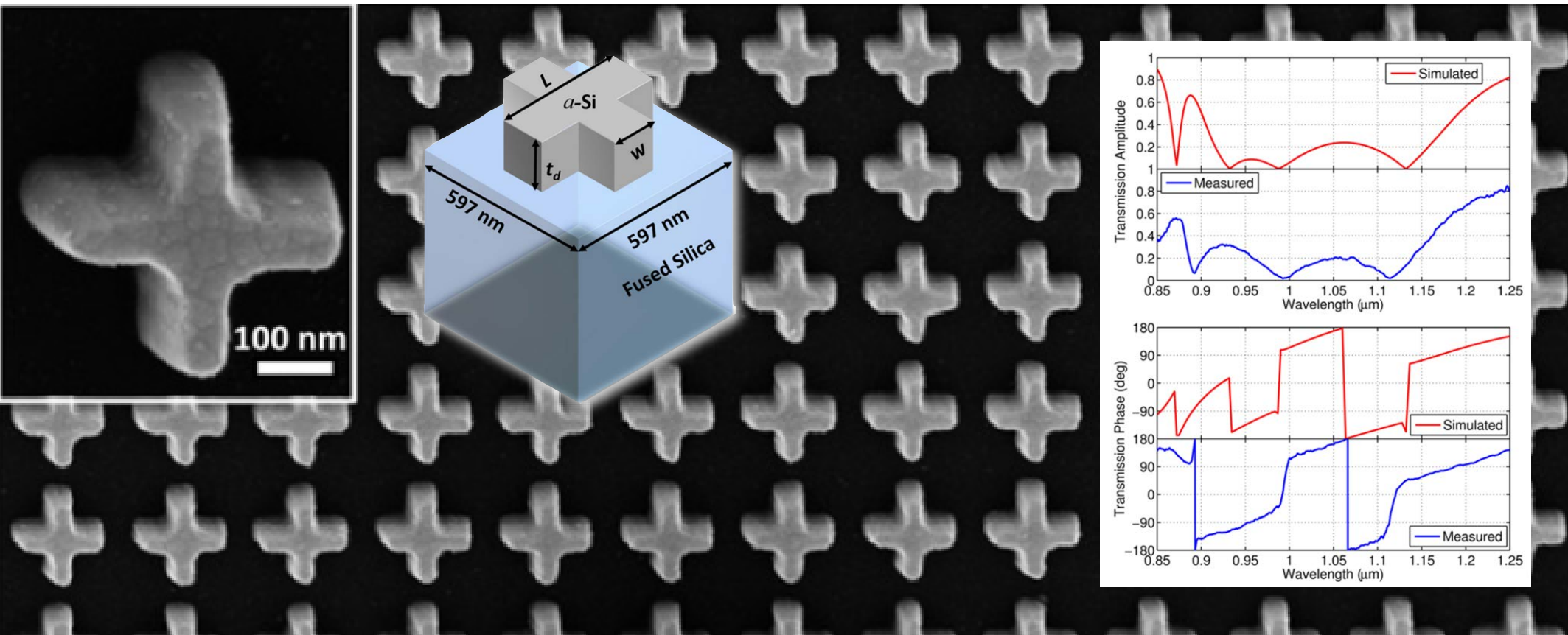


All-dielectric Near-infrared Artificial Mirror

Penn State MRSEC DMR-1420620: L. Lin, Z. H. Jiang, D. Ma, S. Yun, Z. Liu, D. H. Werner and T. S. Mayer, Dielectric nanoresonator based lossless optical perfect magnetic mirror with near-zero reflection phase, *Applied Physics Letters*, **108**, 171902 (2016).



A dielectric mirror comprised of a cross-shaped amorphous silicon nanoresonator array was designed to achieve 99.8% reflectivity and zero reflection phase at the wavelength of 0.99 μm . The measured results match the predictions precisely, with 99.5% reflectivity and near-zero reflection phase at 1 μm . By precisely controlling the propagation of light in nanometer-scale materials, this combined approach of materials design and advanced fabrication holds great promise in applications ranging from nanocavities to nanowaveguides and nanoantennas.