Broadband and Wide Field-of-view Plasmonic Metasurface-enabled Waveplates

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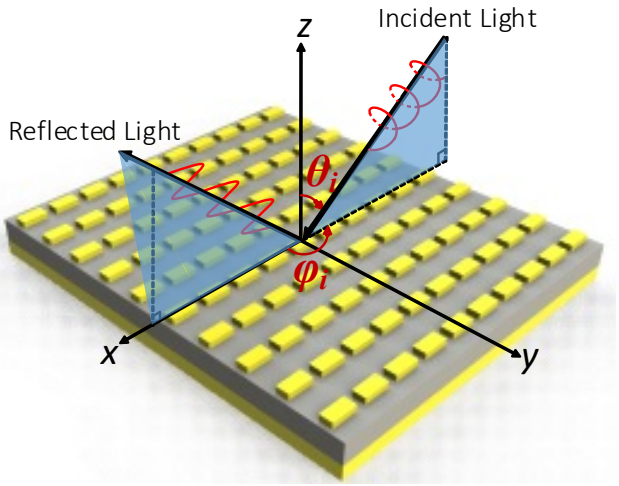

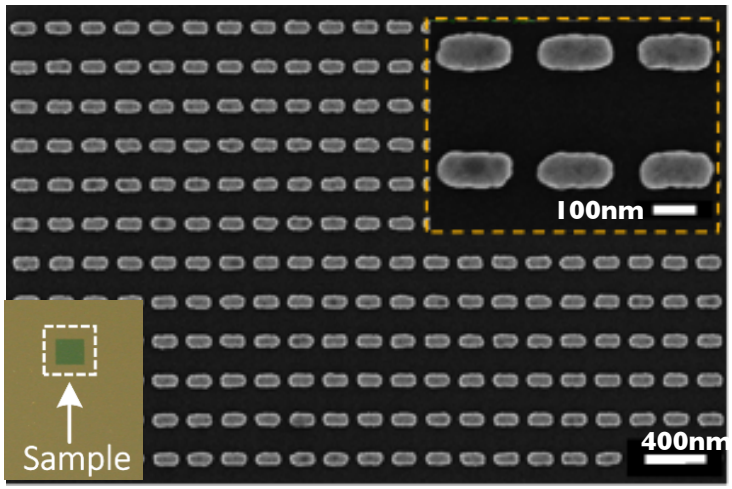

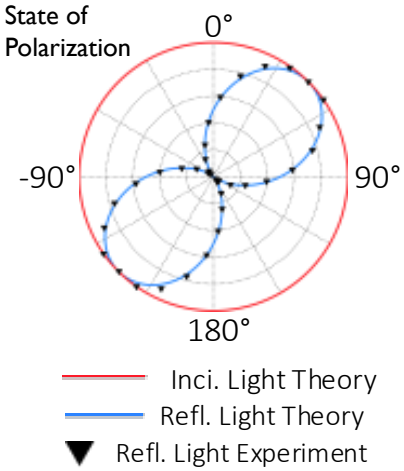

Quasi two-dimensional metasurfaces composed of subwavelength nanoresonator arrays can tailor the light properties in an ultra-thin planar geometry. MRSEC researchers demonstrated the plasmonic metasurfce-enabled waveplates with an array of strongly coupled nanorod resonators to achieve the polarization conversion ratio higher than 92% over more than an octave bandwidth from 640 nm to 1290 nm and a wide field-of-view (FOV) of ±40°. This work outlines a versatile strategy to create metasurface-based photonics with diverse optical functionalities and represents a new state-of-the-art of ultrathin optical components with broad operational bandwidth, wide FOV and high efficiency.