

Supporting Information for “Full Stokes imaging polarimetry using dielectric metasurfaces”

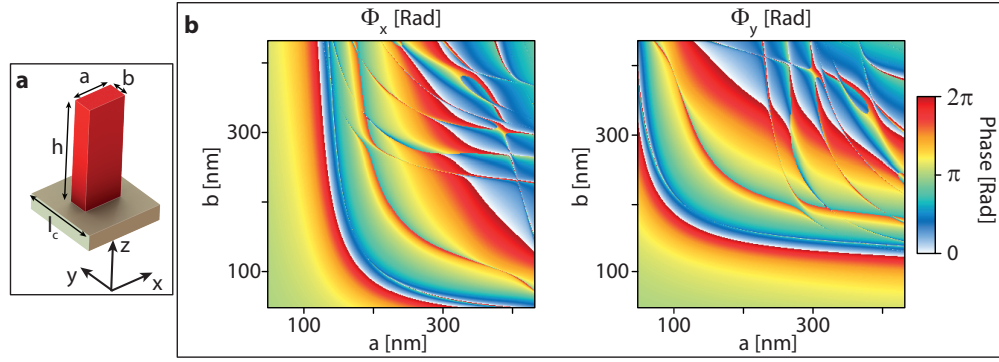
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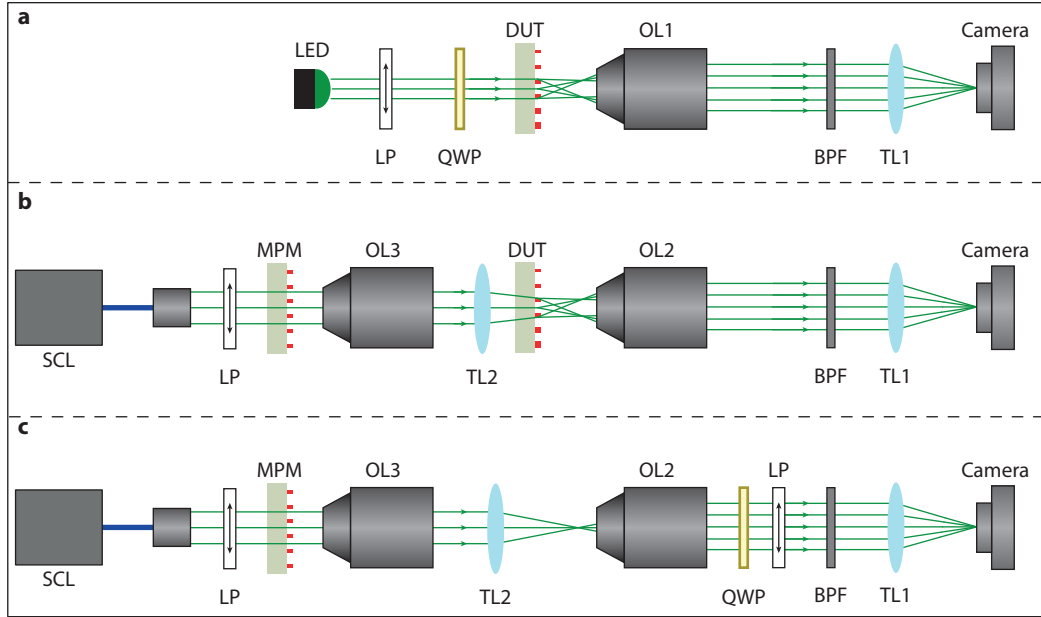
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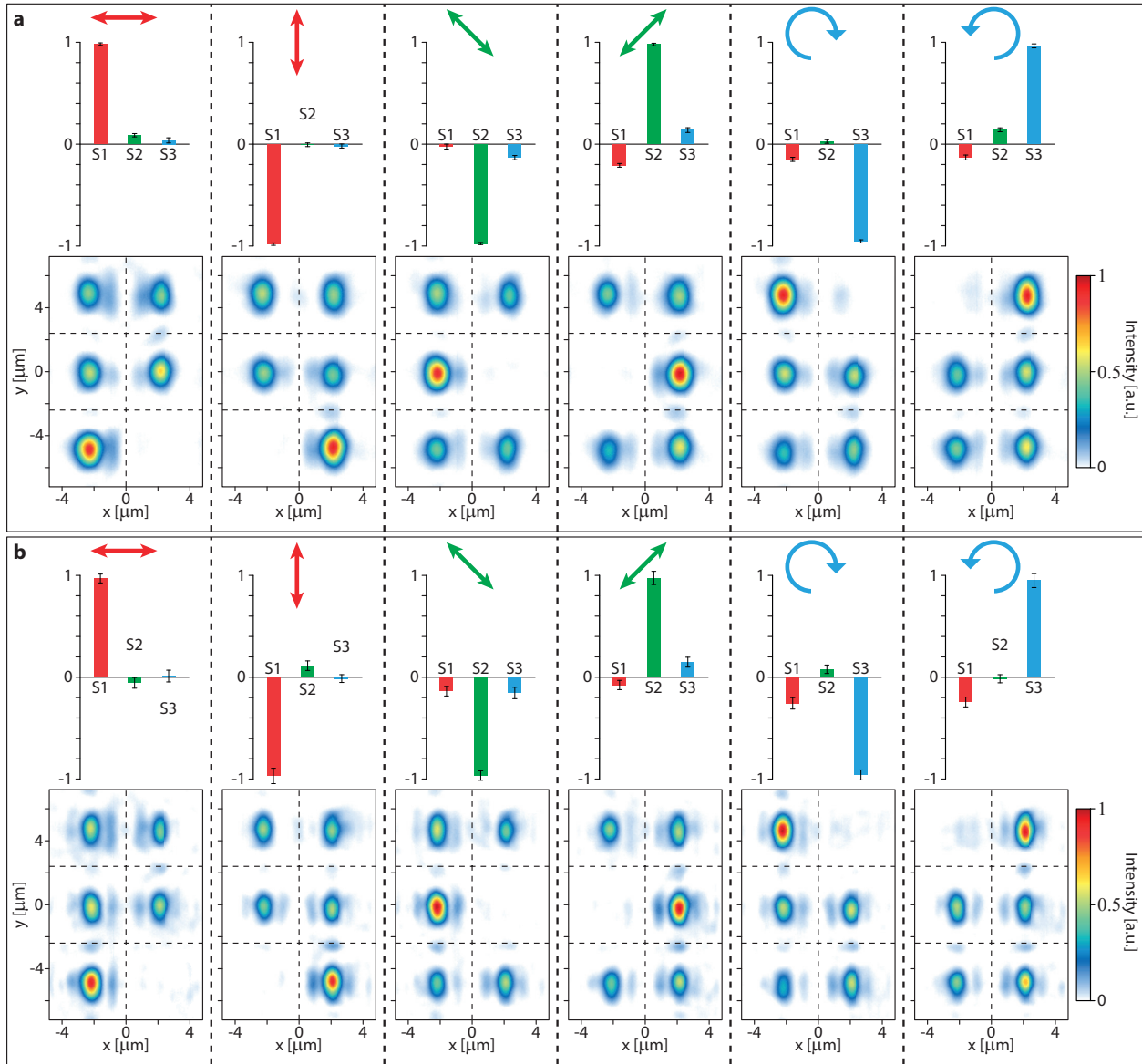
Contents. Six pages, Figs. S1 to S5.



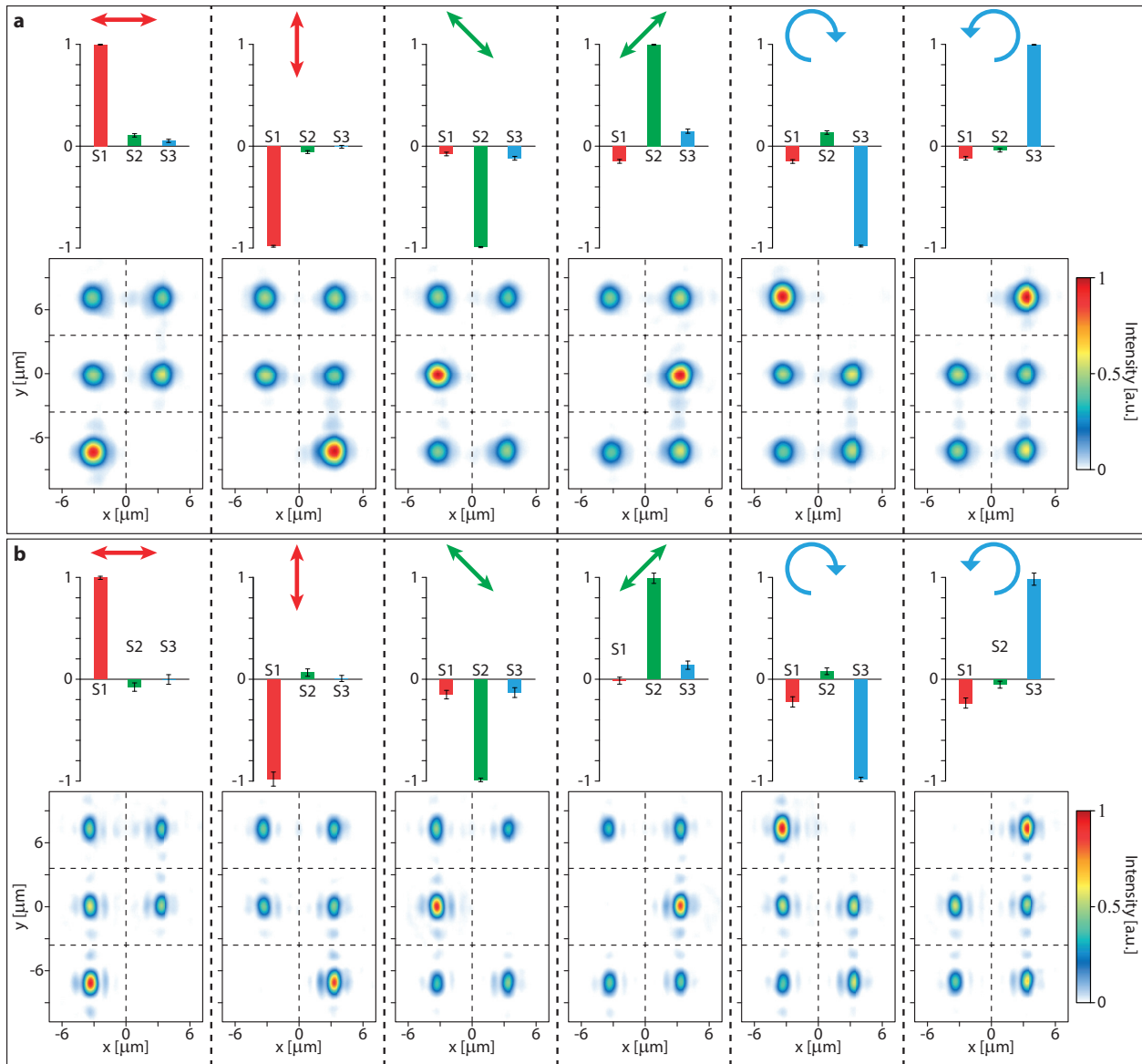
Supporting Information Figure S1 . Transmission phase of the nano-posts. **(a)** Schematic illustration of an α -Si nano-post showing the dimensions. **(b)** Simulated transmission phases for the x - and y -polarized light at the wavelength of 850 nm. The posts are 650 nm tall, and the lattice constant is 480 nm.



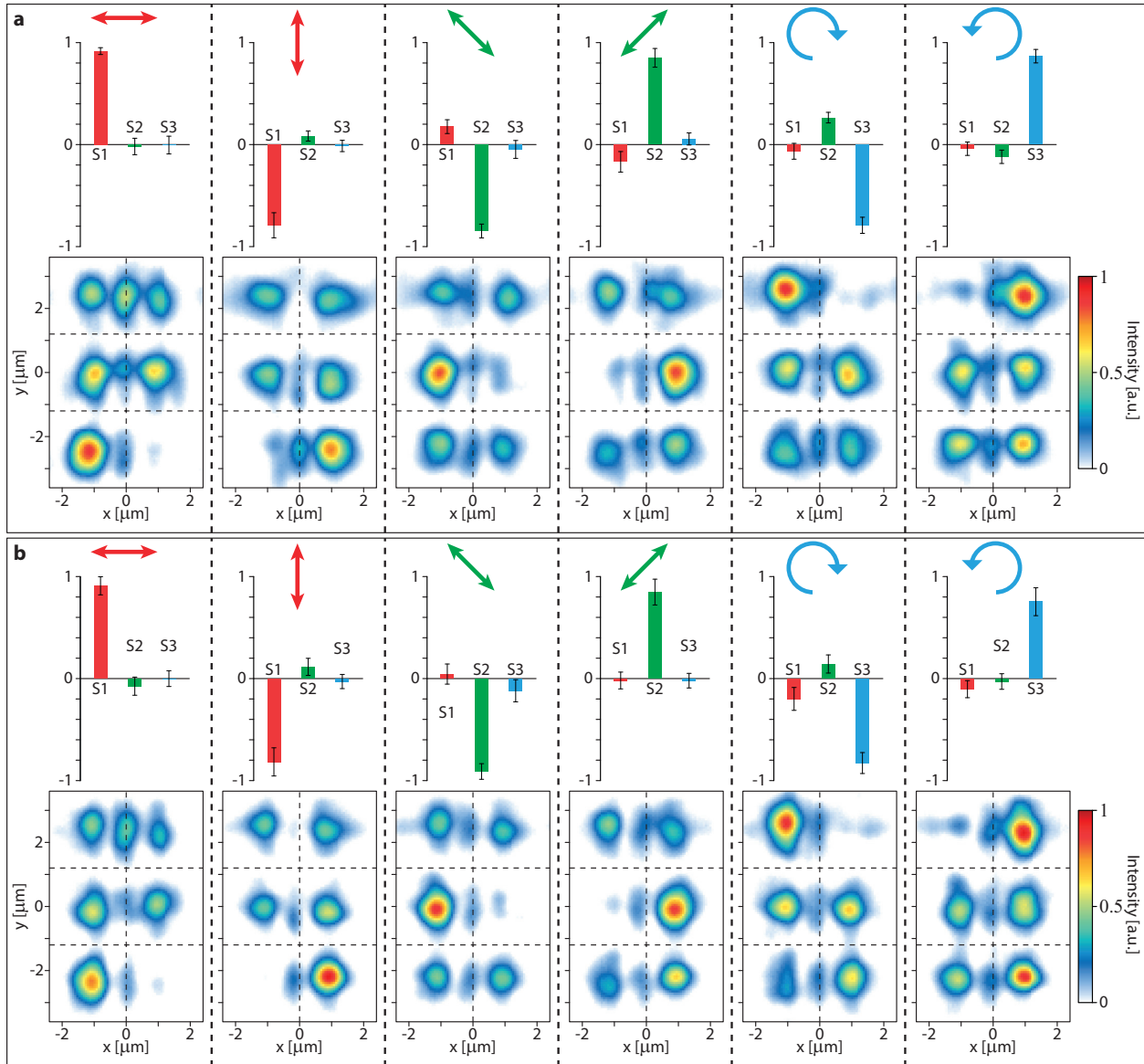
Supporting Information Figure S2 . Measurement setups. **(a)** Schematics of the measurement setup used to characterize the superpixels of the DoFP metasurface mask. **(b)** Schematics of the measurement setup used to capture polarimetric images using the DoFP metasurface mask. **(c)** Schematics of the measurement setup used to capture polarimetric images using the conventional method. LP: Linear polarizer; QWP: Quarter wave-plate; DUT: Device under test; OL: Objective lens; BPF: Bandpass filter; TL: Tube lens; SCL: Supercontinuum laser; MPM: Metasurface polarization mask. (OL1: Olympus UMPlanFl 100 \times , NA=0.95; OL2: LMPlanFl 20 \times , NA = 0.4; OL3: Mitutoyo M Plan Apo 10, NA=0.28; BPF: Thorlabs FL850-10; TL1: Thorlabs AC254-200-B-ML; TL2: Thorlabs LB1723-B; LP: Thorlabs LPVIS100-MP2; QWP: Thorlabs AQWP10M-980; SCL: Fianium WhiteLase micro.)



Supporting Information Figure S3 . Superpixel characterization of DoFP metasurface mask with 4.8- μm pixels. **(a)** Calculated average Stokes parameters for different input polarizations (top) and the corresponding intensity distributions of a sample superpixel (bottom). The Stokes parameters are averaged over about 120 superpixels (limited by the microscope field of view), and the error bars demonstrate the statistical standard deviation. The measurements are performed with an 850-nm LED filtered by a bandpass filter (center: 850 nm, FWHM: 10 nm) as the light source. **(b)** Same as (a), with the bandpass filter removed from the setup. The results shown in (a) are the same as the ones presented in Figs. 3a and 3b and are shown here for comparison with the results shown in (b). When using the band-pass filter, the iris in front of the LED has a larger diameter to compensate for the lower power of the filtered light. This results in the focal spots being tighter without the band-pass filter.



Supporting Information Figure S4 . Superpixel characterization of DoFP metasurface mask with $7.2\text{-}\mu\text{m}$ pixels. **(a)** Calculated average Stokes parameters for different input polarizations (top) and the corresponding intensity distributions of a sample superpixel (bottom). The Stokes parameters are averaged over more than 50 superpixels (limited by the microscope field of view), and the error bars demonstrate the statistical standard deviations. The measurements are performed with an 850-nm LED filtered by a bandpass filter (center: 850 nm, FWHM: 10 nm) as the light source. **(b)** Same as (a), with the bandpass filter removed from the setup.



Supporting Information Figure S5 . Superpixel characterization of DoFP metasurface mask with 2.4- μm pixels. **(a)** Calculated average Stokes parameters for different input polarizations (top) and the corresponding intensity distributions of a sample superpixel (bottom). The Stokes parameters are averaged over about 370 superpixels (limited by the microscope field of view), and the error bars demonstrate the statistical standard deviations. The measurements are performed with an 850-nm LED filtered by a bandpass filter (center: 850 nm, FWHM: 10 nm) as the light source. **(b)** Same as (a), with the bandpass filter removed from the setup.