

# Supporting information: NEMS-tunable dielectric chiral metasurfaces

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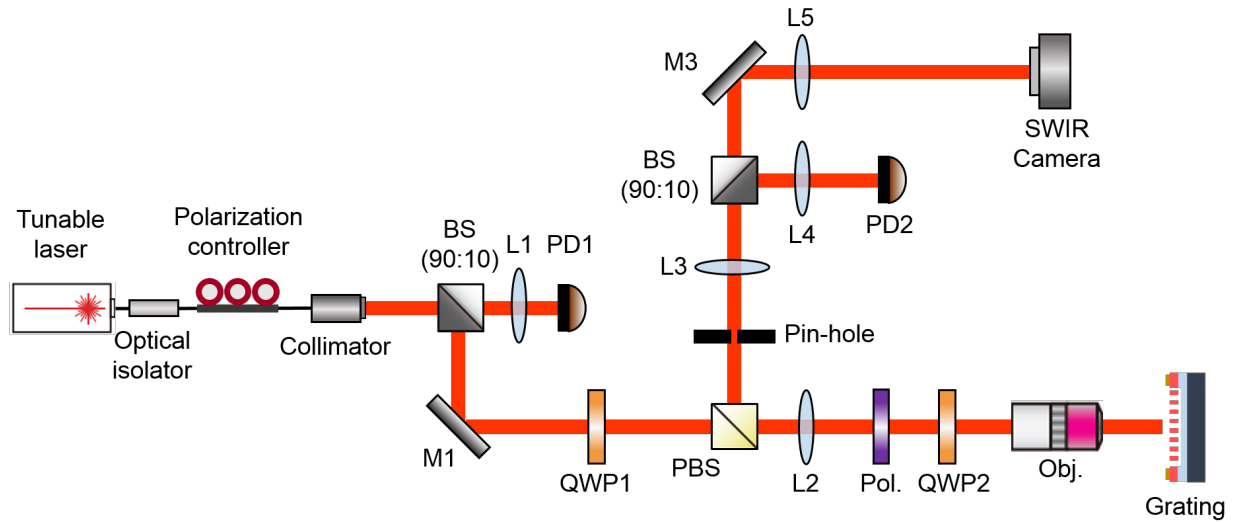
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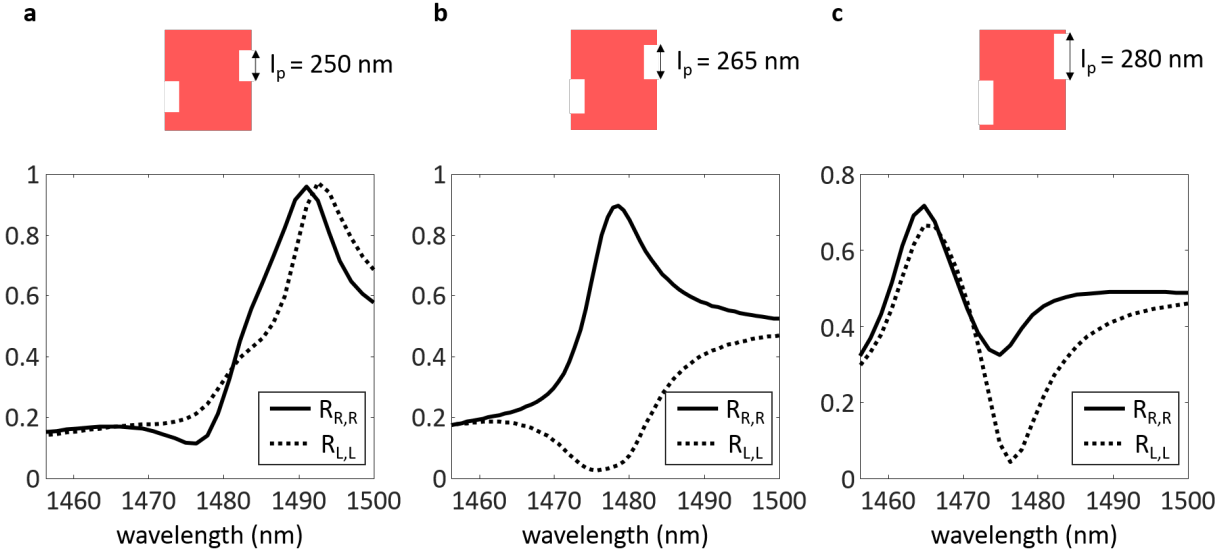
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Figure	$2p$ (nm)	$w$ (nm)	$g_1$ (nm)	$g_2$ (nm)	$w_p$ (nm)	$l_p$ (nm)
Figure 3b	1400	505	165	225	53	275
Figure 3c	1400	520	150	210	70	270

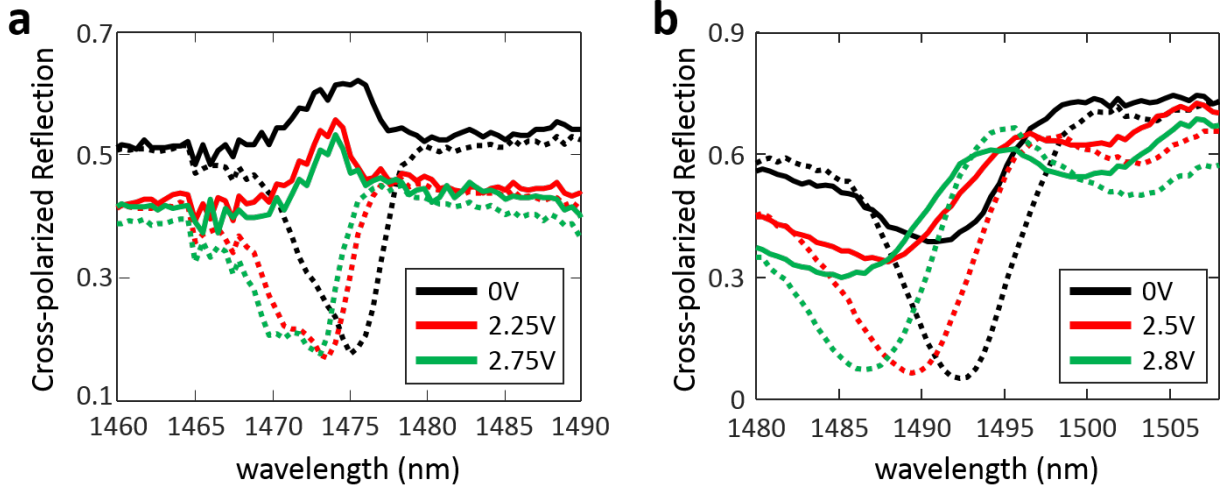
**Table S1 Measured design parameters of the devices used in Figs. 3b and 3c.** The definitions of the design parameters are shown in Fig. 1b.  $2p$ : Period for a pair of the nanostructures.  $w$ : Width of the nanostructure.  $g_1$ : Gap between the silicon bars having voltage difference.  $g_2$ : Gap between the silicon bars having same voltage.  $w_p$ : Perturbated width.  $l_p$ : Perturbated length.



**Figure S1 Schematic illustration of the experimental setup.** Red lines represent the paths of the light. Pol. of the objective lens are aligned to  $45^\circ$ . To achieve the reflection spectra of  $R_{L,L}$  and  $R_{R,R}$ , the QWP2 is mounted on the rotation stage and aligned to  $0^\circ$  and  $90^\circ$ . To achieve the plane-wave illumination condition, the L2 is used as an illumination lens and a tube lens. The L2 and the objective lens are aligned such that the beam after the objective lens is collimated on-axis. As the sample is always aligned with the fixed objective lens, illumination angle in the experiments is set to 0 degree. Pol.: linear polarizer. BS: beamsplitter. PBS: polarizing beamsplitter. L: lens. PD: photodetector. M: mirror. QWP: quarter waveplate. HWP: half waveplate. Obj.: microscope objective lens. SWIR camera: short-wave infrared camera.



**Figure S2 Numerical investigation on fabrication errors.** a-c The simulated reflection spectra of  $R_{L,L}$  and  $R_{R,R}$  for different values of  $l_p$ . Other parameters are the same as the parameters noted in Fig. 2 in the main text. Top: Schematic illustration of the nanostructures constituting the metasurface. The values of  $l_p$  are shown in the illustration. Bottom: Calculated reflection spectra of  $R_{L,L}$  and  $R_{R,R}$ . The spectra of  $R_{L,L}$  and  $R_{R,R}$  are plotted in dashed and solid lines, respectively.



**Figure S3 Measured reflection spectra with electrical biases.** a and b Measured reflection spectra of  $R_{L,L}$  and  $R_{R,R}$  under different external biases. The devices exploited in Figs. 3b and 3c are measured and plotted in a and b, respectively. The spectra of  $R_{L,L}$  and  $R_{R,R}$  are plotted in dashed and solid lines, respectively. The applied bias for each color is shown in legends. The spectra of CD,  $|R_{L,L} - R_{R,R}|$ , are calculated from a and b and plotted in Fig. 4a and 4b in the main text.