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Off-axis multi-wavelength dispersion controlling metalens for multi-color imaging

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Fig. S1–Fig. S3

Supplementary information for this paper is available at <https://doi.org/10.29026/oea.2020.190005>

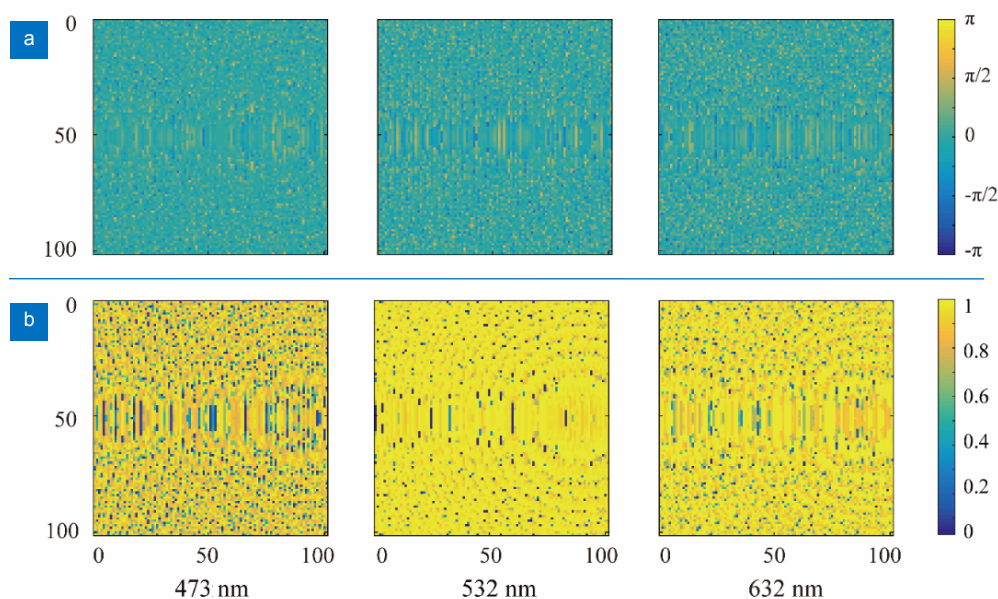


Fig. S1 | (a) Phase error distribution map of the designed metalens for 473 nm, 532 nm and 632 nm respectively. Phase error at each pixel on the metalens is calculated as the difference between the target phase (Fig. 3(a)) and actual phase (Fig. 3(b)). The range of error is between $-\pi$ and π . (b) Calculated reflectivity of the nanopillars in the metalens for 473 nm, 532 nm and 632 nm respectively. Abscissa and ordinate indicate the number of pixels.

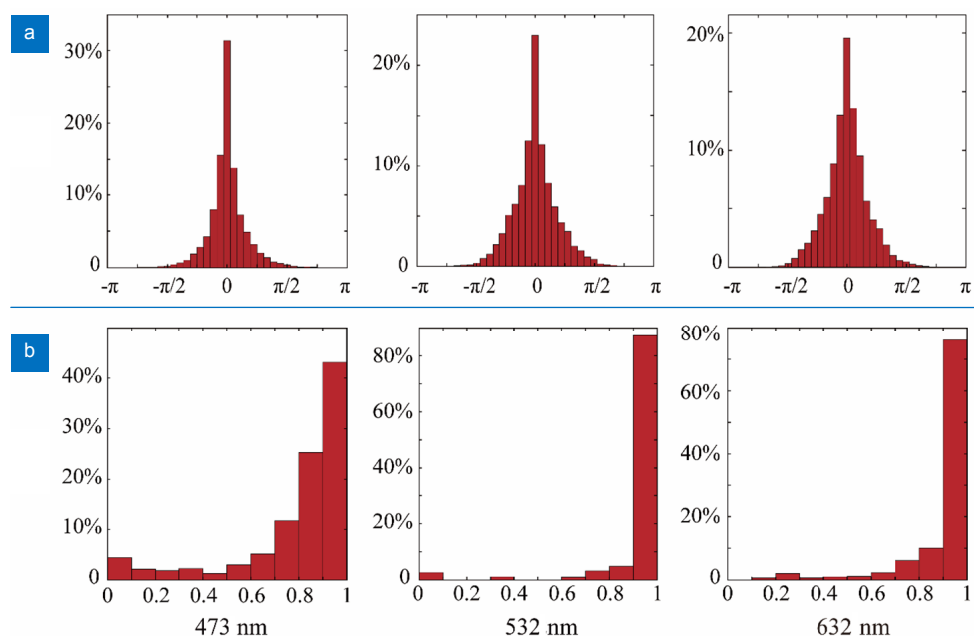


Fig. S2 | (a) Histogram of the phase error across the metalens for 473 nm, 532 nm and 632 nm, respectively. Abscissa indicates the phase error from $-\pi$ to π , the bar width is 10° , and the height corresponds to the percentage of the pixel whose error falls in the range. (b) Histogram of the calculated reflectivity across the metalens for 473 nm, 532 nm and 632 nm, respectively. Abscissa indicates the reflectivity of the nanostructure, the bar height corresponds to the percentage of the pixel whose reflectivity falls in the range.

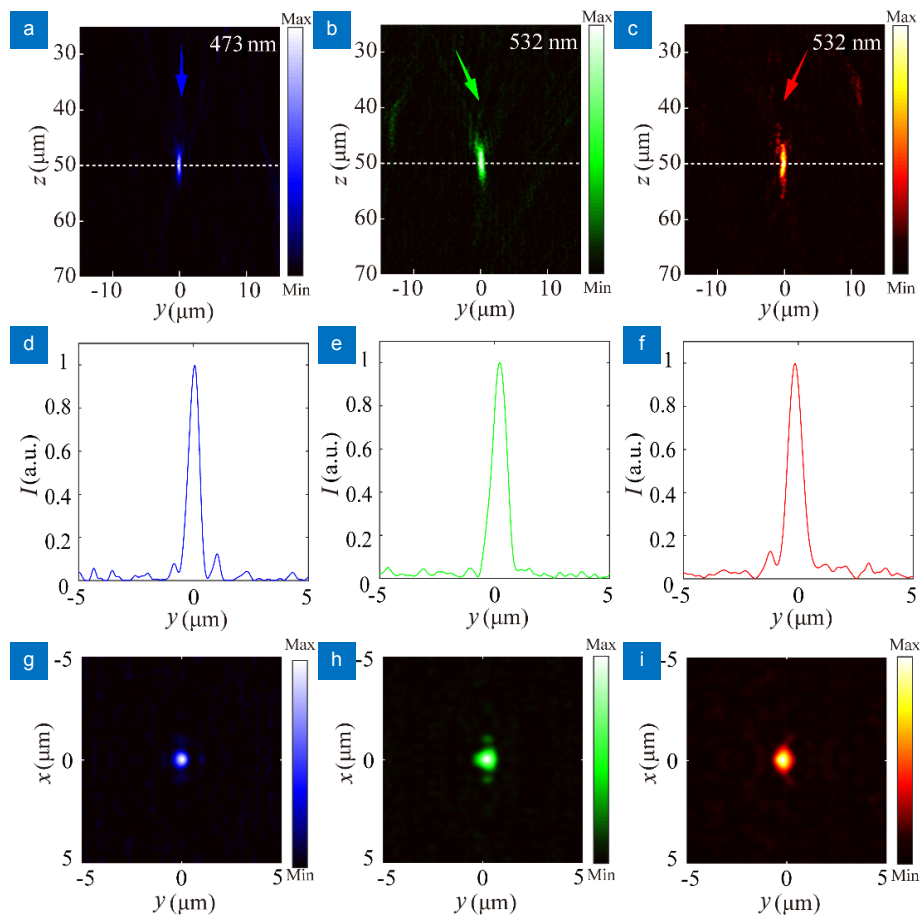


Fig. S3 | (a–c) Numerically calculated normalized intensity distributions in the yz -plane at the wavelengths of 473 nm, 532 nm, and 632 nm under TM polarized incidence. The corresponding incidence angles are 0° , -17° , and 17° , respectively. **(d–f)** Normalized intensity curves of the three lights along the y -axis across the focal plane. **(g–i)** Normalized intensity distributions in the xy -plane at the focal plane for the wavelengths of 473 nm, 532 nm, and 632 nm.