ADVANCED MATERIALS

Supporting Information

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Visible-Frequency Metasurface for Structuring and Spatially Multiplexing Optical Vortices

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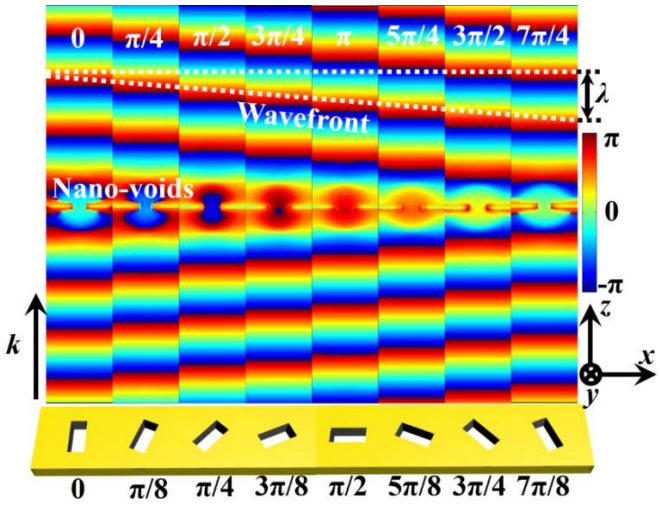

Figure S1| Discrete Phase-variation (from 0 to $7\pi/4$), obtain through FDTD lumerical simulations, corresponding to the orientation of individual nanovoids (ranging from 0 to $7\pi/8$).

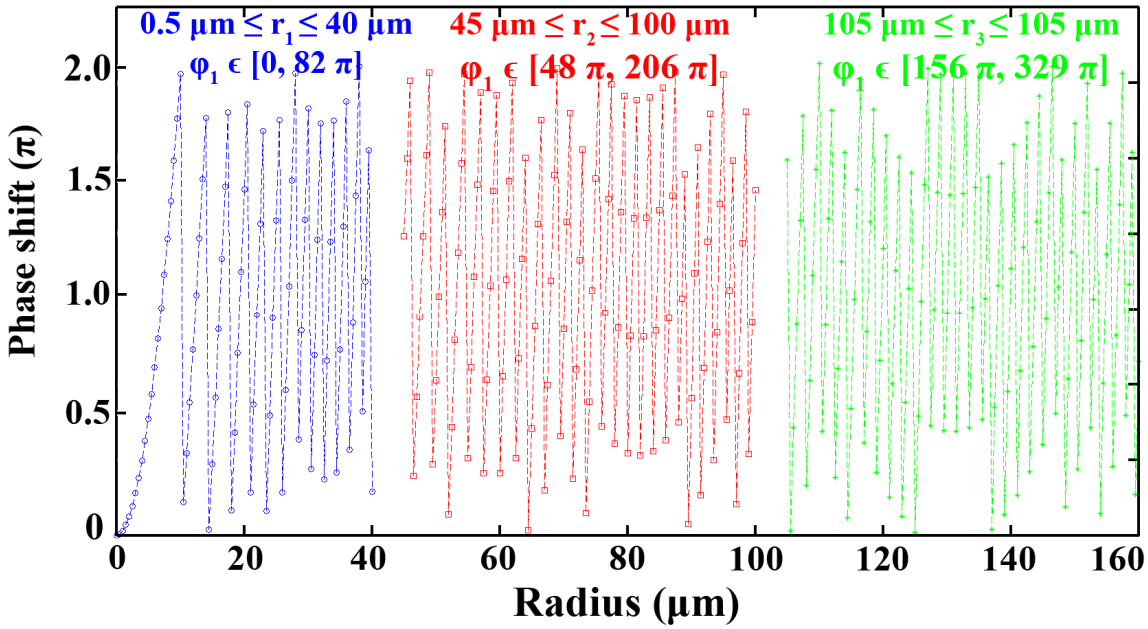

Figure S2| The phase discontinuity for the positive polarity lenses for RHCP illumination along the radial direction. The ranges of radial angular rotations of nano-voids for inner, middle and outer sub-lens are $[0, 82\pi]$, $[48\pi, 206\pi]$ and $[156\pi, 329\pi]$, respectively.

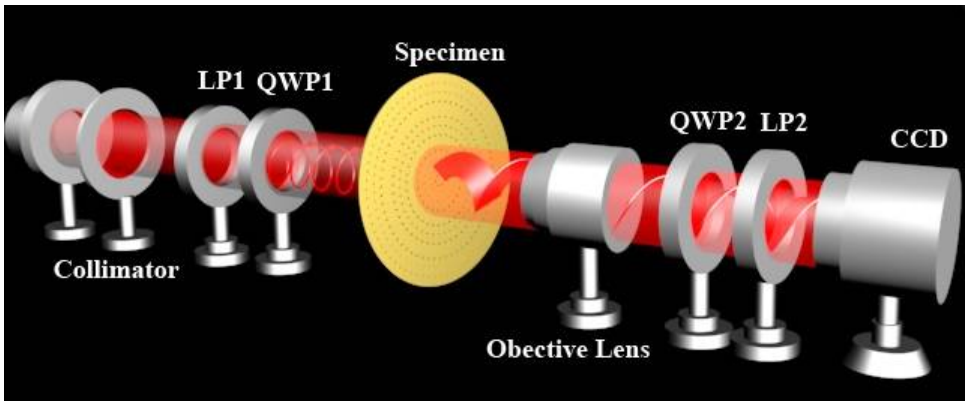

Figure S3| Schematic of the experimental to characterize the metalens. A Laser beam from He-Ne (λ = 632.8 nm) is collimated before impinging on the pair of LP1 and QWP1. The obtained CP beam, through LP1 and QWP1, is then shined onto the sample and an objective lens (×100) is employed to enlarge the image. A second pair of LP2 and QWP2 is used to acquire cross-polarized illumination before capturing the intensity profile through CCD.