Supplementary Information for:

Ultra-Long Focal Depth Annular Lithography for Fabricating Micro Ring-Shaped Metasurface Unit Cells on Highly Curved Substrates

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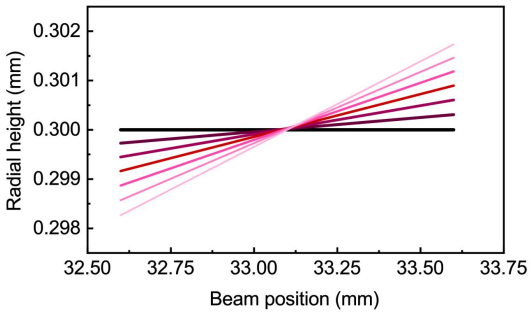

Figure S1. Simulation of converging the beam layers. Beam layers are colour-coated according to their intensity near the image plane. The darkest layer comes from the inner layer of Gaussian beam.

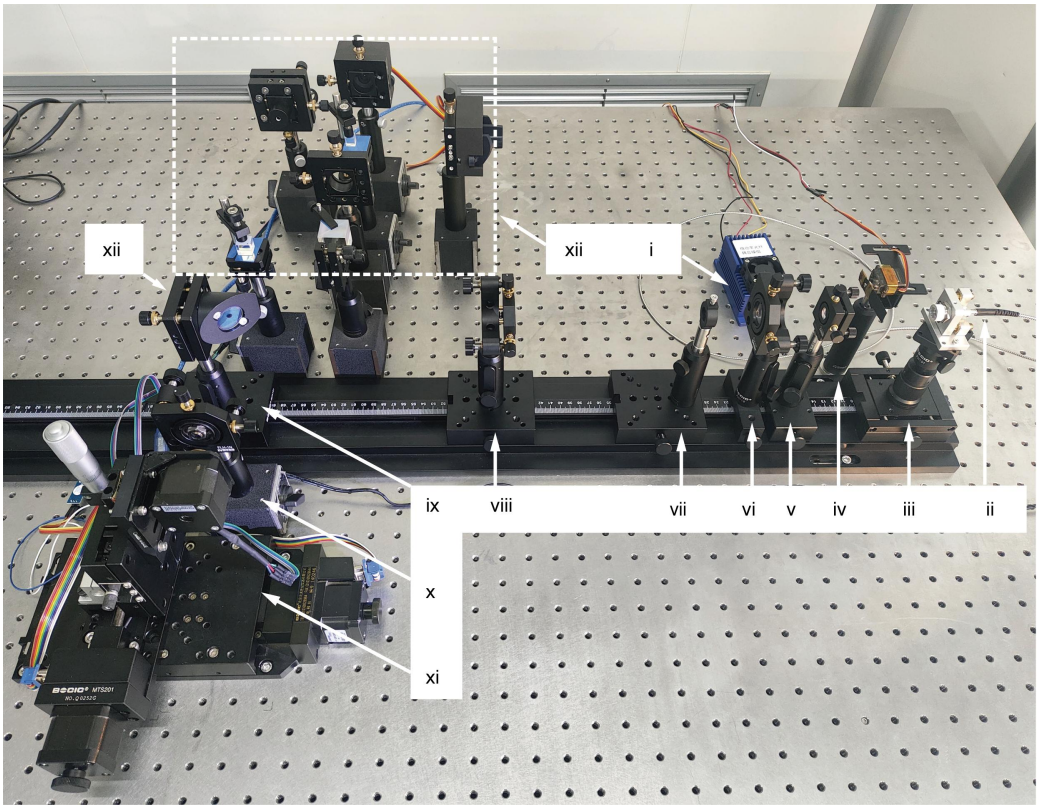

Figure S2. Components of experimental setup. i: laser diode, ii: optical fiber, iii: collimator, iv: shutter, v: axicon-1, vi: axicon-2, vii: attenuation plate, viii: convex lens-1, ix: dichroscope, x: convex lens-2, xi: moving stage and substrate holder, xii: dichroic mirror, xiii: defocusing detection part.

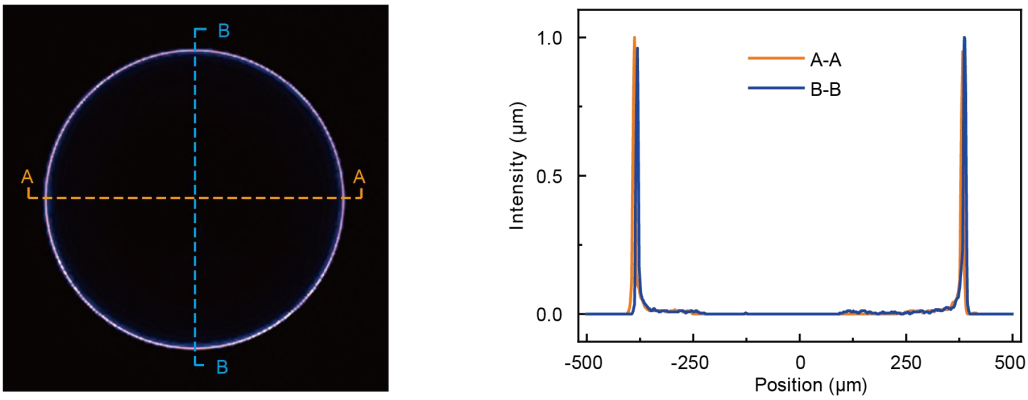

Figure S3. Ring-shaped pattern with diameter of 800 μm, captured by using a camera. The line chart illustrates the intensity distribution along the "A-A" and "B-B" cross-sections.

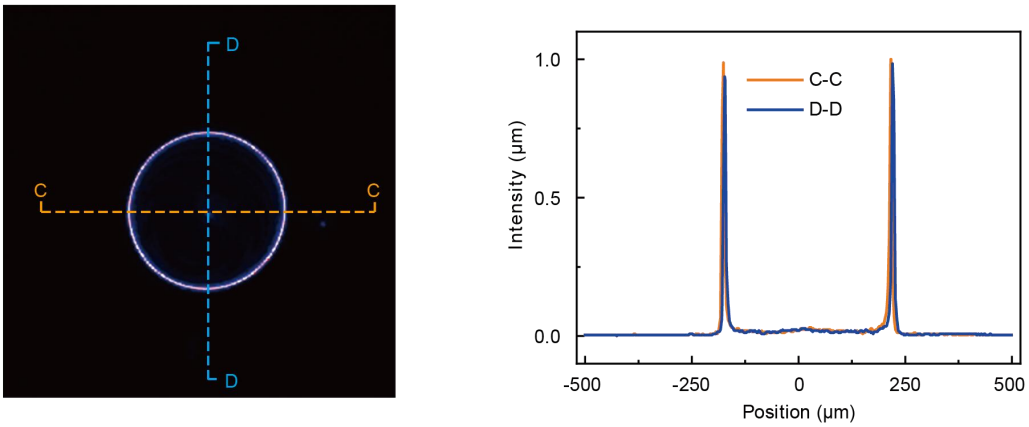

Figure S4. Ring-shaped pattern with diameter of 400 μm, captured by using a camera. The line chart illustrates the intensity distribution along the "C-C" and "D-D" cross-sections.

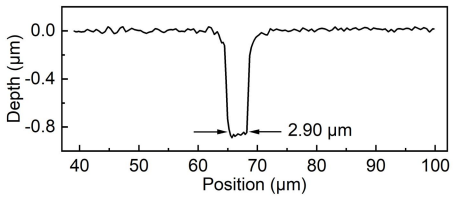

Figure S5. The standard measurement of ring width. This example located at the first cross-section of 400 μm ring-shaped pattern.