Research data for

Spatial optical phase-modulating metadevice with subwavelength pixelation

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The manuscript contains all information required to reproduce the simulation results that it contains.

Here, the numerical simulation results are given by csv (comma-separated value) tables of the electric field magnitude $|E_y|/|E_0|$ of light of $\lambda = 550$ nm wavelength reflected by the nanowire metadevice and reference structures as described in the manuscript. All structures consist of 50 nm of gold supported by 50 nm of silicon nitride and the incident field illuminates the gold-side of all structures. The reflected field amplitude is given relative to the amplitude $|E_0|$ of the incident *y*-polarized plane wave's electric field.

All simulations are two-dimensional (*xz*-plane) and therefore assume that the structures are infinite in the *y*-direction. The x-coordinate increases from column to column (left to right) in steps of 50 nm. The z-coordinate increases from row to row (bottom to top) in steps of 50 nm.

File names and figure numbers of the manuscript correspond to each other.

Fig2a.csv, Fig2b.csv, Fig2c.csv, Fig2d.csv: The nanowire period is 400 nm prior to nanowire displacement. X-axis from -60μm to +60μm, z-axis from -40μm to 0μm.

Fig2a.csv shows reflection from a grating light valve of period $p_g = 800$ nm realized by $\lambda/4$ actuation of every second nanowire.

Fig2b.csv shows reflection from a grating of period $p_g = 1200$ nm resulting from $\lambda/8$ displacement of every third nanowire.

Fig2c.csv shows reflection from a blazed nanowire grating of period $p_g = 1200$ nm.

Fig2d.csv shows reflection from a phase gradient surface with period $p_g = 1600$ nm, based on a saw tooth configuration of the nanowires that are displaced in steps of $\lambda/8$.

Fig3a.csv, Fig3b.csv, Fig3c.csv: The nanowire period is 400 nm prior to nanowire displacement. The maximum nanowire displacement is 250 nm in all cases.

Fig3a.csv shows reflection from a focusing concave mirror realized by displacing the nanowires to approximate a cylindrical segment. X-axis from -20μm to +20μm, z-axis from -60μm to 0μm.

Fig3b.csv shows reflection from a defocusing convex mirror realized by displacing the nanowires to approximate a cylindrical segment. X-axis from -20μm to +20μm, z-axis from -60μm to 0μm.

Fig3c.csv shows reflection from a multifocal mirror array, where each mirror is formed by displacing groups of 10 nanowires in a concave cylindrical arrangement. X-axis from -12.5μm to +12.5μm, z-axis from -10μm to 0μm.

Fig4a.csv, Fig4b.csv, Fig4c.csv, Fig4d.csv:
X-axis from -40μm to +40μm, z-axis from -55μm to 0μm.

Fig4a.csv shows reflection from a continuous flat gold mirror of 12.7 μm width. The gold layer has a thickness of 50 nm and is supported by 50 nm of silicon nitride.

Fig4b.csv shows reflection from a flat mirror configuration of nanowires with 400 nm (sub-wavelength) period and 12.7 μm overall width.

Fig4c.csv shows reflection from a flat mirror configuration of nanowires with 800 nm period.

Fig4d.csv shows reflection from a focusing concave mirror realized by displacing the nanowires of 800 nm period (prior to displacement) to approximate a cylindrical segment with a maximum nanowire displacement of 250 nm.