Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Broadband Near-Perfect Optical Absorbers Fabricated by Complete Spherical Platinum Shells with and without Induced Symmetry Broken Cracks Using a Simple Colloidal Route

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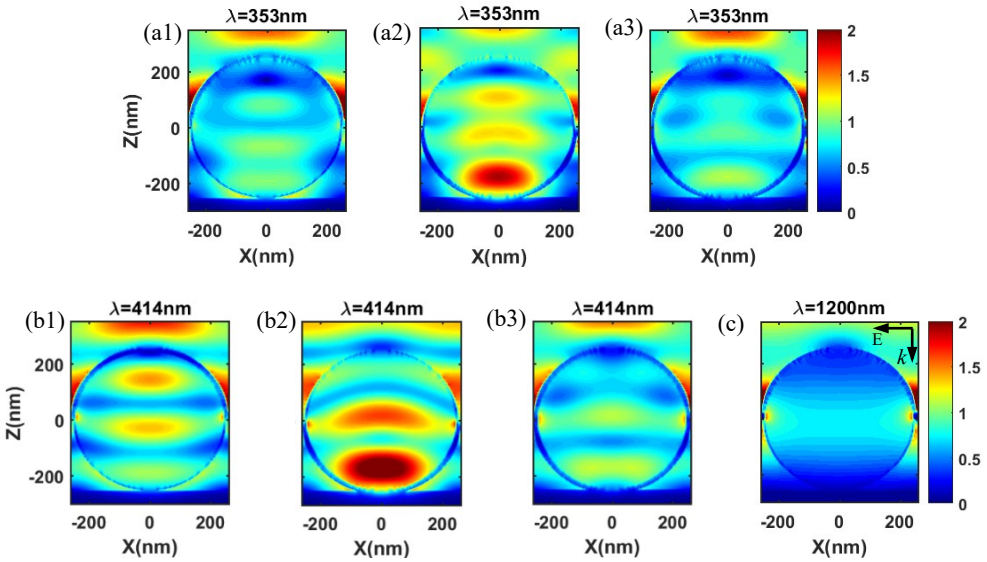

Fig. S1 (a-b) Electric field distributions of spherical based platinum shells of (1) upper hemispherical shell arrays, (2) lower hemispherical shell arrays, and (3) complete shell arrays at (a) 353 nm and (b) 414 nm. (c) Electric field distributions of upper hemispherical based platinum shells at 1200 nm.

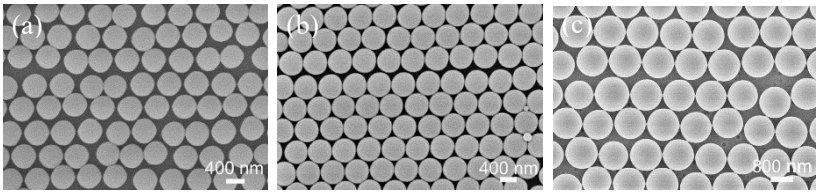

Fig. S2 Typical SEM images of (a)TiO_2 spherical shells with 520 nm in diameter and in 1.2 oxide thickness; (b) TiO_2 spherical shells with 520 nm in diameter and 3 nm in oxide thickness, (c) Al_2O_3 spherical shells with 1000 nm in diameter and 3 nm in oxide thickness.

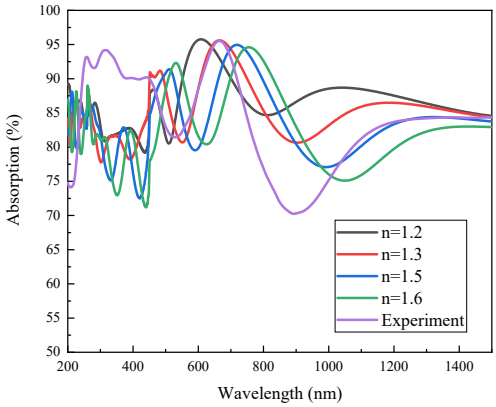

Fig. S3 The simulated spectra of platinum shell filled with different effective refractive index and the experimental spectrum. The effective refractive index is determined by the polymer remaining ratios inside the metallic shells.

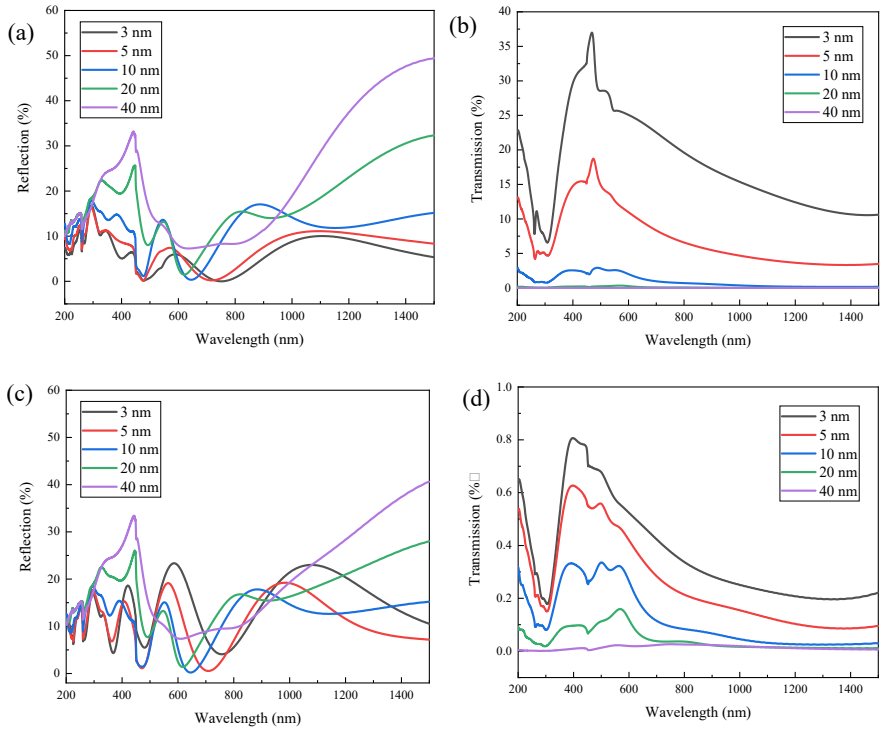

Fig. S4 (a-b) Simulated spectra of (a) reflection and (b) transmission of the spherical shell arrays in different platinum thickness without induced cracks using conformal platinum-coated substrate. (c-d) Simulated spectra of (c) reflection and (d) transmission of the spherical shell arrays in different platinum thickness without induced cracks using 50 nm platinum-deposited substrate.