Electronic Supplementary Information for:

Template-free facile solution synthesis and optical properties of ZnO mesocrystals

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Figure S1. (a, b) SEM images of the products reaction for (a) 2.5 h; (b) 3 h at 120°C. (c) The corresponding XRD patterns.

Figure S2. SEM images of the products formed at different temperatures for 12 h: (a) 130 °C; (b) 180 °C.
Figure S3. SEM images of the samples formed at 120 °C for 12 h with different reaction solvents: (a) methanol; (b) ethanol; (c) isopropanol; (d) butanol.

Figure S4. We numerically simulated our material using the Mathematica 7 software. Our model employs eight symmetric electrical dipoles, and each occupies a vertex of the cuboids. These dipoles stand for the nanoplatelets surrounding the mesocrystal spheres. We use
this model to illustrate how the dipole-dipole interactions between the nanoplatelets and the electric field generated from ZnO mesocrystal microspheres.

**Figure S5.** The simulated electric field (gray arrows) and electric potential (color lines) distributions of the core model prism.

**Figure S6.** EPR spectrum of ZnO microspheres recorded at room temperature.