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Electronic Supplementary Information (ESI) for

Stimuli-responsive circularly polarized luminescence from an achiral perylenyl dyad

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Fig. S1 Molecular orbital diagrams for HOMO and LUMO energy levels of 1 by DFT calculation.



Fig. S2 Simulated UV-vis spectra for 1 obtained by TD-DFT.

2 Electrochemistry



Fig. S3 Cyclic voltammograms for (a) oxidation and (b) reduction of 1.



Fig. S4 Concentration-dependent absorption spectra of 1 in THF solution with various concentrations.

4 Dynamic light scattering (DLS)



Fig. S5 DLS results showing the variation in particle diameter sizes with increasing the water content (a) 90% and (b) 90% in THF solution of 1.

5 Time-resolved fluorescence decays



Fig. S6 Emission decay profiles for 1 in pure THF and THF/H₂O mixture (v/v, 5:95).

6 Transmission electron microscopy (TEM)



Fig. S7 TEM images of nanospheres assembled from 1 in THF/H₂O mixture (a) v/v, 50:50; (b) v/v, 30:70; (c) v/v, 20:80; (d) v/v, 10:90. Solution concentration: 10 μ M.

7 Atomic force microscopy (AFM)



Fig. S8 AFM images of nanosphere assembled from 1 in THF/H₂O mixture (a) v/v, 50:50; (b) v/v, 30:70; (c) v/v, 20:80; (d) v/v, 10:90. Solution concentration: 10 µm

8 Circularly polarized luminescence (CPL) and luminescence dissymmetry factor (glum)



Fig. S9 Concentration dependent g_{lum} of 1 in THF solution with various concentrations.



Fig. S10 CPL spectra and g_{lum} of 1 in THF/H₂O mixture (ν/ν , 80:20, 60:40, 50:50, 40:60, 20:80). Solution concentration: 10 μ M.





Fig. S11 g_{lum} spectra of **1** in THF/H₂O mixture (a) (*ν*/*ν*, 90:10, 70:30, 30:70, 10:90, 5:95); (b) (*ν*/*ν*, 80:20, 60:40, 50:50, 40:60, 20:80), Solution concentration: 10 μM; (c) in thin film.



Fig. S12 (a) CD and UV-vis spectra of 1, as thin film spin-coated from 1.0 mg/mL THF solution on quartz substrates.

10 Scanning electron microscopy (SEM)



Fig. S13 SEM images of nanospheres assembled from 1 (a) in THF (1×10^{-3} M) and (b) in THF/H₂O solution (ν/ν , 5:95).



Fig. S14 ¹H NMR spectra of 5 in CDCl₃.





S10



12 MALDI-TOF-MS spectra



S11