Supporting Information for

Morphology-controlled self-assembly of ferroceneporphyrin based NO₂ gas sensor: tuning the semiconducting nature *via* solvent-solute interaction

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Fig. S1 MALDI-TOF mass spectrum of H_2PorFc .



Fig. S2 ¹H NMR spectrum of H₂PorFc in CDCl_{3.}



Fig. S3 FT-IR spectrum of the H_2FcPor powder (black line), H_2PorFc nanospheres (red line) and H_2PorFc nanobelts (blue line).



Fig. S4 Nanospheres formed from H_2PorFc in methanol observed by transmission electron microscopy (TEM).



Fig. S5 EDXS spectrum of the H_2PorFc nanospheres (A) and H_2PorFc nanobelts (B).



Fig. S6 The cycling response curves of the nanospheres (A) and the nanobelts (B) to NO_2 at the concentration of 50 ppm.



Fig. S7 Long-term stability of the H_2FcPor nanospheres sensor (black line) and H_2FcPor nanobelts sensor (red line) to 50 ppm NO₂.



Fig. S8 Selectivities of H₂FcPor nanobelts to various gases.



Fig. S9 Selectivities of H₂FcPor nanospheres to various gases.

	ferrocene			Porphyrin		
Compound	Ord (V)	Oxd ₂	Oxd ₁	Dad (V)	UOMO	LUMO
	Oxu(V)	(V)	(V)	$\operatorname{Ked}_{1}(\mathbf{v})$	помо	LUMO
H ₂ FcPor	0.51	1.46	0.86	-0.45	-5.30	-3.99

Table S1 Half-Wave Redox Potentials (V) of H_2FcPor in CH_2Cl_2 Containing 0.1 M $[Bu_4N][ClO_4]$ and the HOMO, LUMO levels of H_2PorFc at room temperature.

Table S2 Electronic absorption spectral data for H_2PorFc dissolved in CHCl₃, its self-assemblies nanostructures formed in *n*-hexane and in methanol.

Compound	λmax/nm			
	Soret	Q band		
H ₂ FcPor solution	419	515, 551, 592, 645		
H ₂ PorFc/ <i>n</i> -hexane	442	524, 559, 599, 654		
H ₂ PorFc/CH ₃ OH	426	525, 560, 599, 655		