Electronic Supplementary Information for

Gemini supra-amphiphiles with finely-controlled self-assemblies

Lijuan Shi,*[a] Fuyu Chen,[a] Nan Sun[b] and Liqiang Zheng*[b]

[a] *Key Laboratory of Coal Science and Technology of Ministry of Education and Shanxi Province, Taiyuan University of Technology, Taiyuan 030024, China. Tel: +86-351-6010190; E-mail: shilijuan@tyut.edu.cn*

[b] *Key Laboratory of Colloid and Interface Chemistry, Shandong University, Ministry of Education, Jinan 250100, China. Tel: +86-531-88366062; E-mail: lqzheng@sdu.edu.cn*
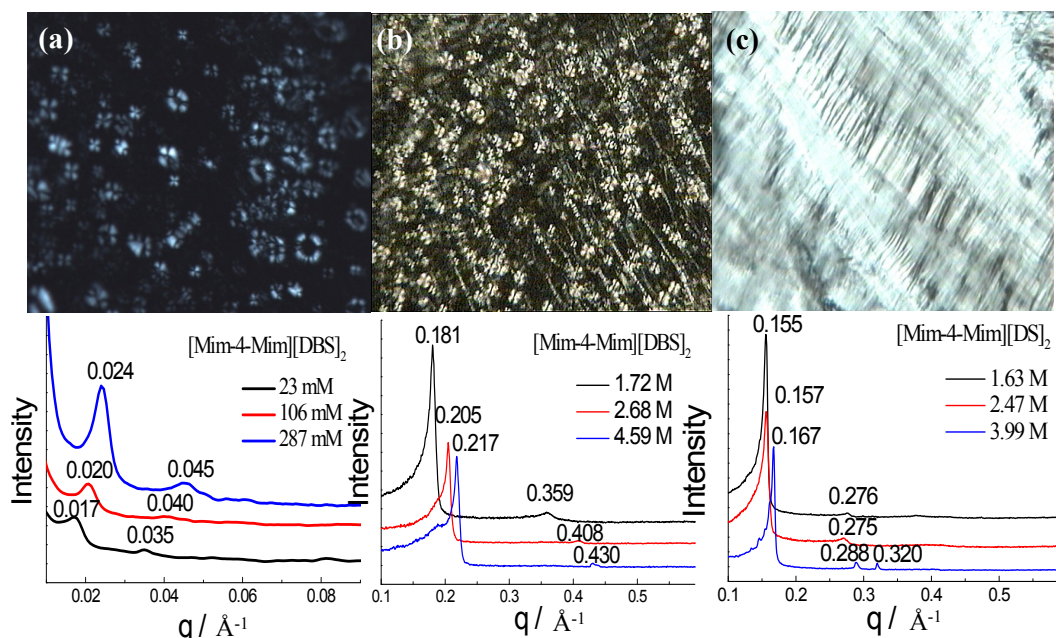
Fig. S1 POM images (top) and SAXS curves (bottom) for L_α (a) and LLC (b) phases in [Mim-4-Mim][DBS]$_2$ aqueous solutions at 20 °C; (c) POM image (top) and SAXS curves (bottom) for H$_1$ phase in [Mim-4-Mim][DS]$_2$ aqueous solution at 20 °C.
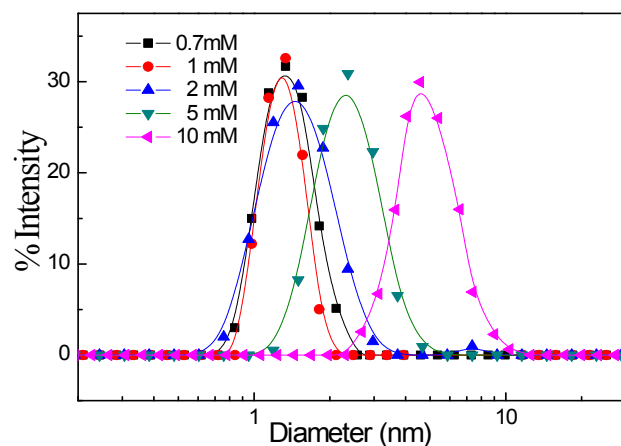
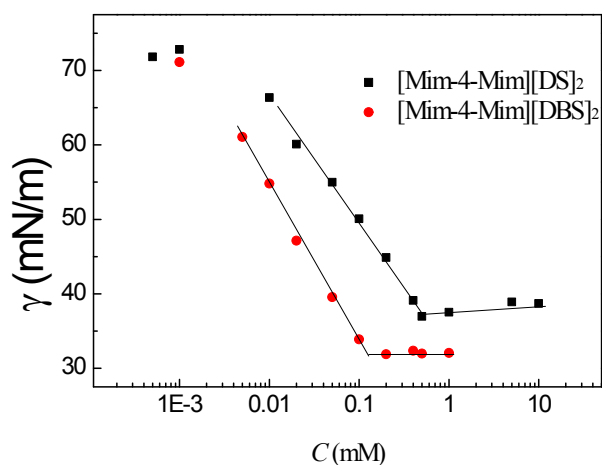**Fig. S2** Size distributions of [Mim-4-Mim][DS]$_2$ aqueous solutions at different concentrations at 20 °C.

Fig. S3 Surface tension curves of [Mim-4-Mim][DS]$_2$ and [Mim-4-Mim][DBS]$_2$ against their concentrations at 20 °C.
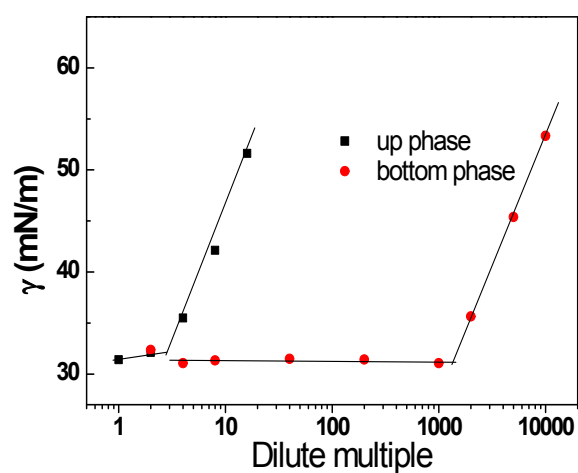

Fig. S4 Surface tension of up and bottom phases with diluted multiple at 35 °C. Total [Mim-4-Mim][DBS]$_2$ concentration: 128 mM.
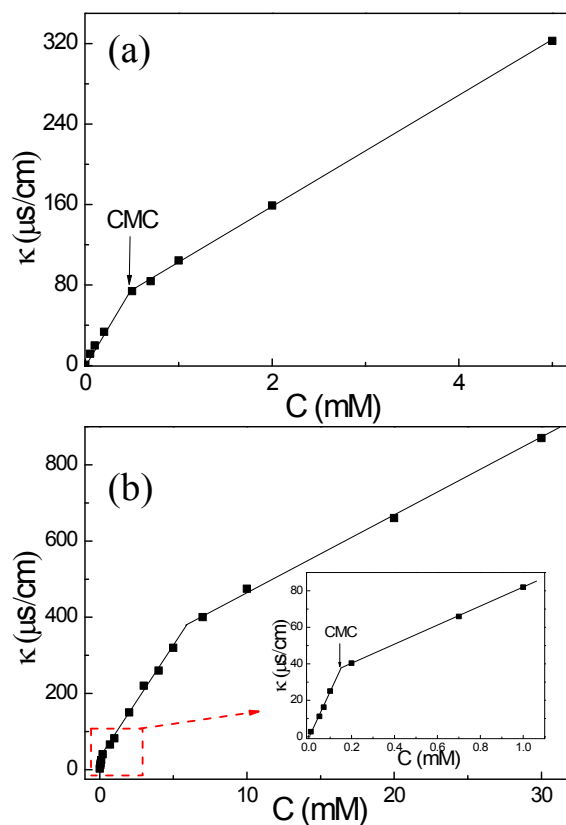
Fig. S5 The plots of electrical conductivity against concentration of [Mim-4-Mim][DS]$_2$ (a) and [Mim-4-Mim][DBS]$_2$ (b) at 20 °C. The counterion dissociation degree (α) to micelles can be obtained from the ratio of the slope above and below CMC, and the α value to vesicles is equal to the ratio of the slope above the concentration of vesicle formation and below CMC.[1] The counterion binding degree (β) is equal to 1-α.[1]

References

(1) P. C. Shanks and E. I. Franses, *J. Phys. Chem.* 1992, **96**, 1794–1805.