Electronic Supporting Information:

Wormlike Micelles with Photoresponsive Viscoelastic Behavior Formed by Surface Active Ionic Liquid/Azobenzene Derivative Mixed Solution

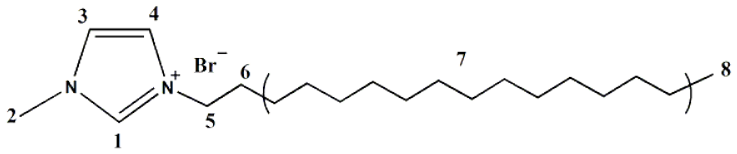
Yanhui Bi,[a] Hongtu Wei,[b] Qiongzheng Hu,[c] Wenwen Xu,[a] Yanjun Gong,[a] Li Yu [a*]

[a] *Key Laboratory of Colloid and Interface Chemistry, Shandong University, Ministry of Education, Jinan 250100, PR China.*

[b] *China Research Institute of Daily Chemical Industry, Taiyuan 030001, PR China*

[c] *Department of Chemistry, University of Houston, Houston, Texas 77204, United States.*

^{1}H NMR spectroscopy for C_{16}mimBr



For C_{16}mimBr, ^{1}H NMR ($CDCl_3$, δ/ppm): 0.88 (t, 3H, H_8), 1.25-1.33 (d, 26H, H_7), 1.92 (t, 2H, H_6), 4.13 (s, 3H, H_2), 4.31 (t, 2H, H_5), 7.21 (d, 2H, H_3 and H_4), 10.95 (s, 1H, H_1).

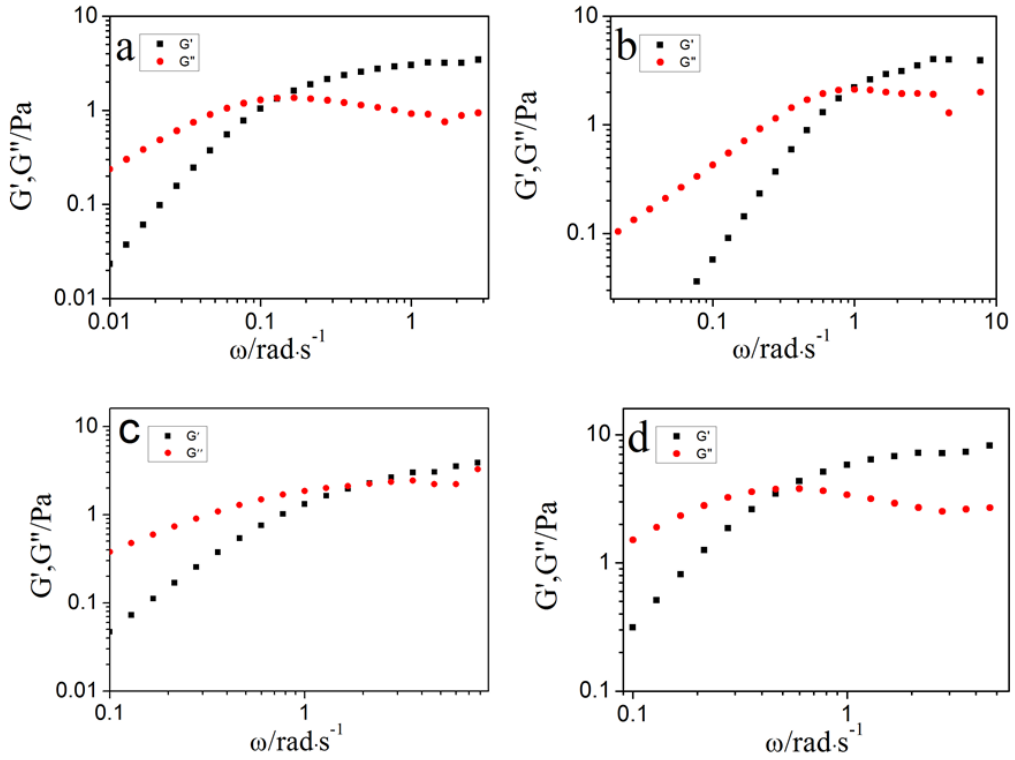


Fig. S1 Dynamic frequency spectra exhibiting elastic (G') and viscous (G'') modulus as a function of oscillatory shear frequency ω. C_{16}mimBr/AzoCOONa (2:1 molar ratio) aqueous solution with different concentrations (mM): 40/20 (a), 50/25 (b), 60/30 (c), 80/40 (d), respectively.

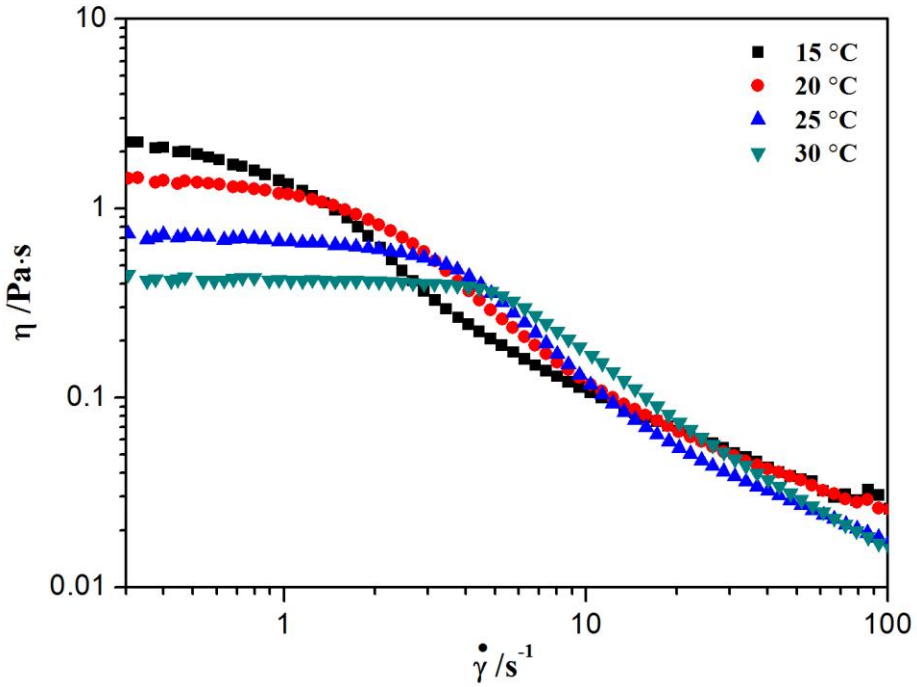


Fig. S2 Steady-shear rheology showing shear viscosity η as a function of shear rate $\dot{\gamma}$ at different temperature.

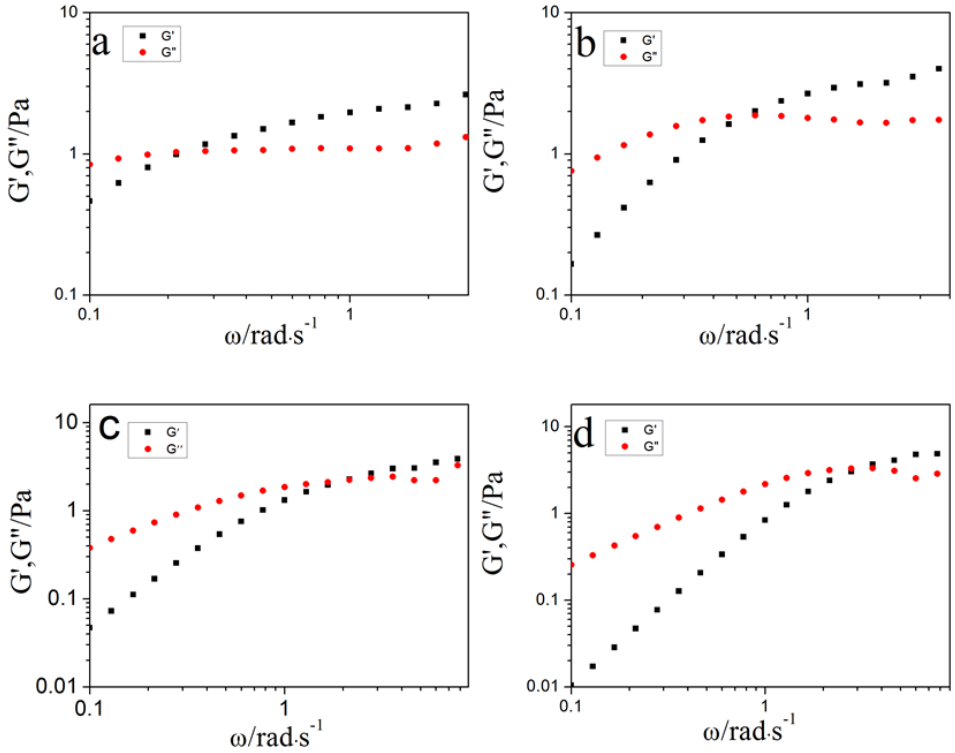


Fig.S3 Dynamic frequency sweep of the aqueous solution containing C_{16}mimBr (60 mM) and AzoCOONa (30 mM) at different temperature: 15°C (a), 20°C (b), 25°C (c), and 30°C (d), respectively.