Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supplementary Information

Competitive effects of Salt and Surfactant on the Structure of Nanoparticles in the binary system of Nanoparticle and Protein

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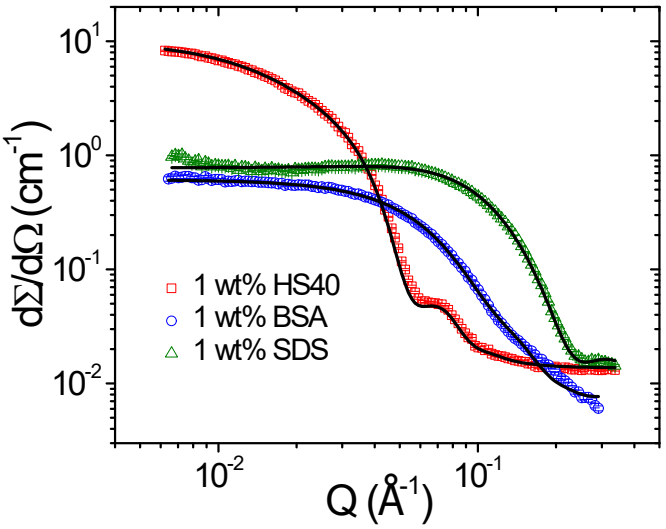
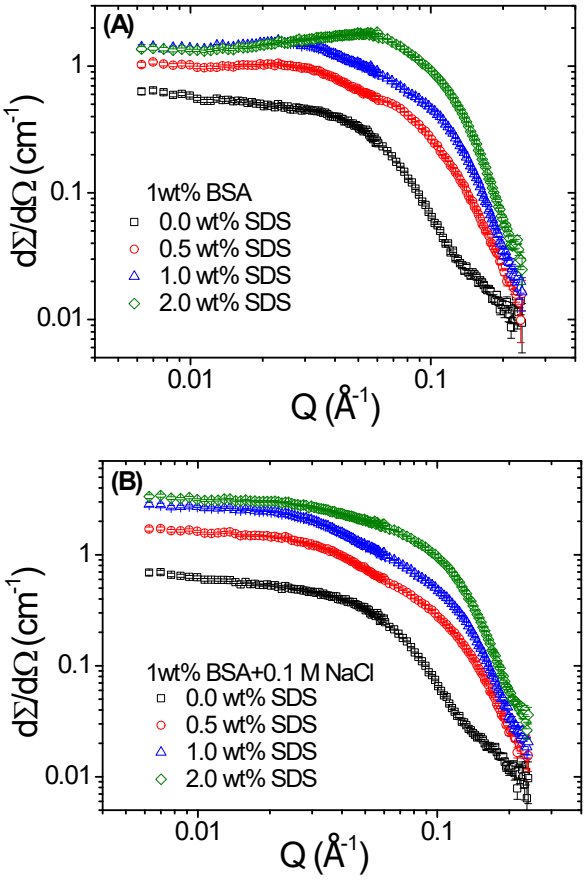


Fig. S1 SANS data of the individual components of silica nanoparticles, BSA protein, and SDS surfactant in D_2O (1wt% each). Model fits from SASfit are overlayed on each as solid black lines.

Table S1 Fitted structural parameters of 1 wt% HS40 nanoparticle, 1 wt% BSA and 1 wt% SDS in D_2O.

System (1 wt%)	Semi-major axis (nm)	Semi-major axis (nm)	Charge	Model
HS40	8.0	8.0	-	Spherical
BSA	4.2	1.4	-	Oblate ellipsoidal
SDS	2.7	1.6	23	Prolate ellipsoidal



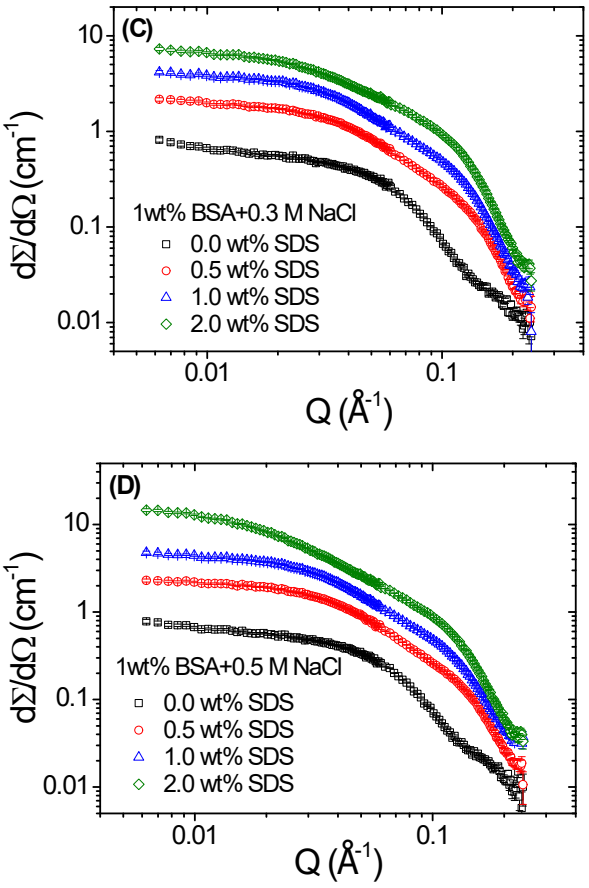


Fig. S2 SANS data of 1wt% BSA protein + 0-2.0 wt% SDS at in presence of varying concentrations of NaCl (A) 0 M NaCl (B) 0.1 M NaCl (C) 0.3 M NaCl (D) 0.5 M NaCl. SANS data of BSA-SDS in the presence of salt shows clear signatures of beads-on-a-string model.

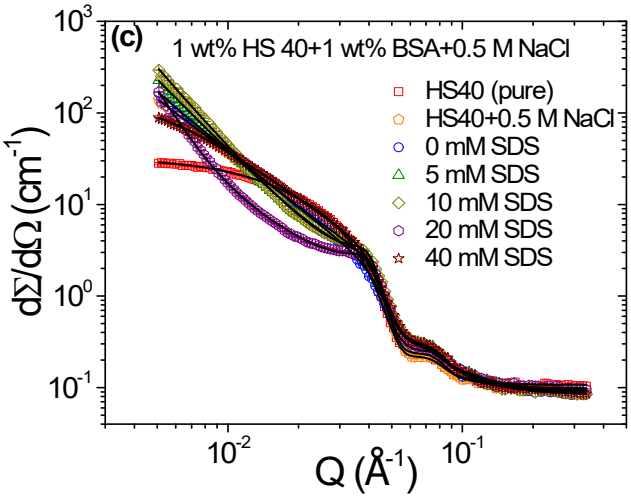


Fig. S3 SANS data of the 1 wt% Hs40 + 1 wt% BSA+ 0.5 M NaCl in presence of varying concentrations of SDS.

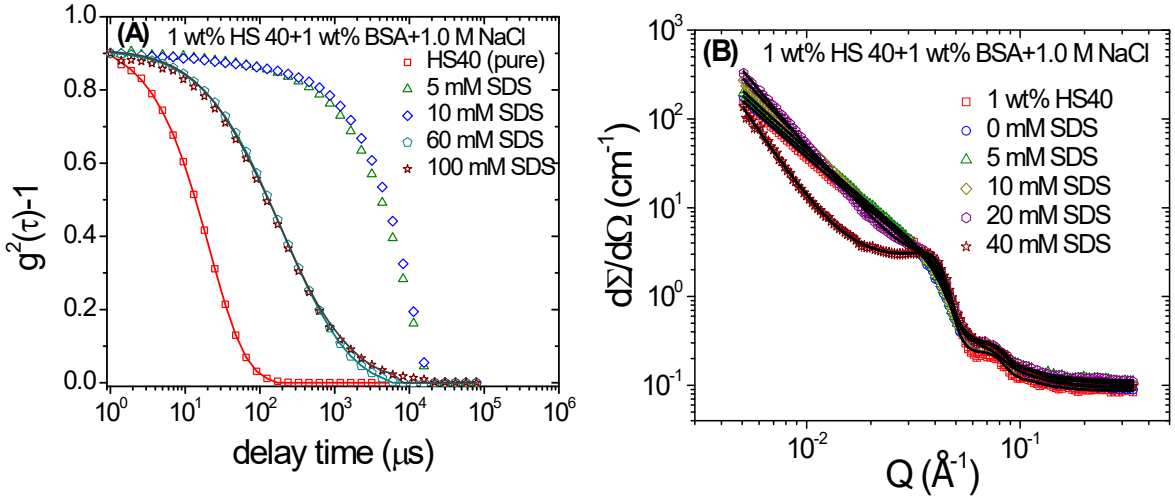


Fig. S4 (A) DLS and (B) SANS data of 1wt% HS40 silica nanoparticles + 1wt% BSA protein + 1.0 M NaCl in presence of varying concentrations of SDS.

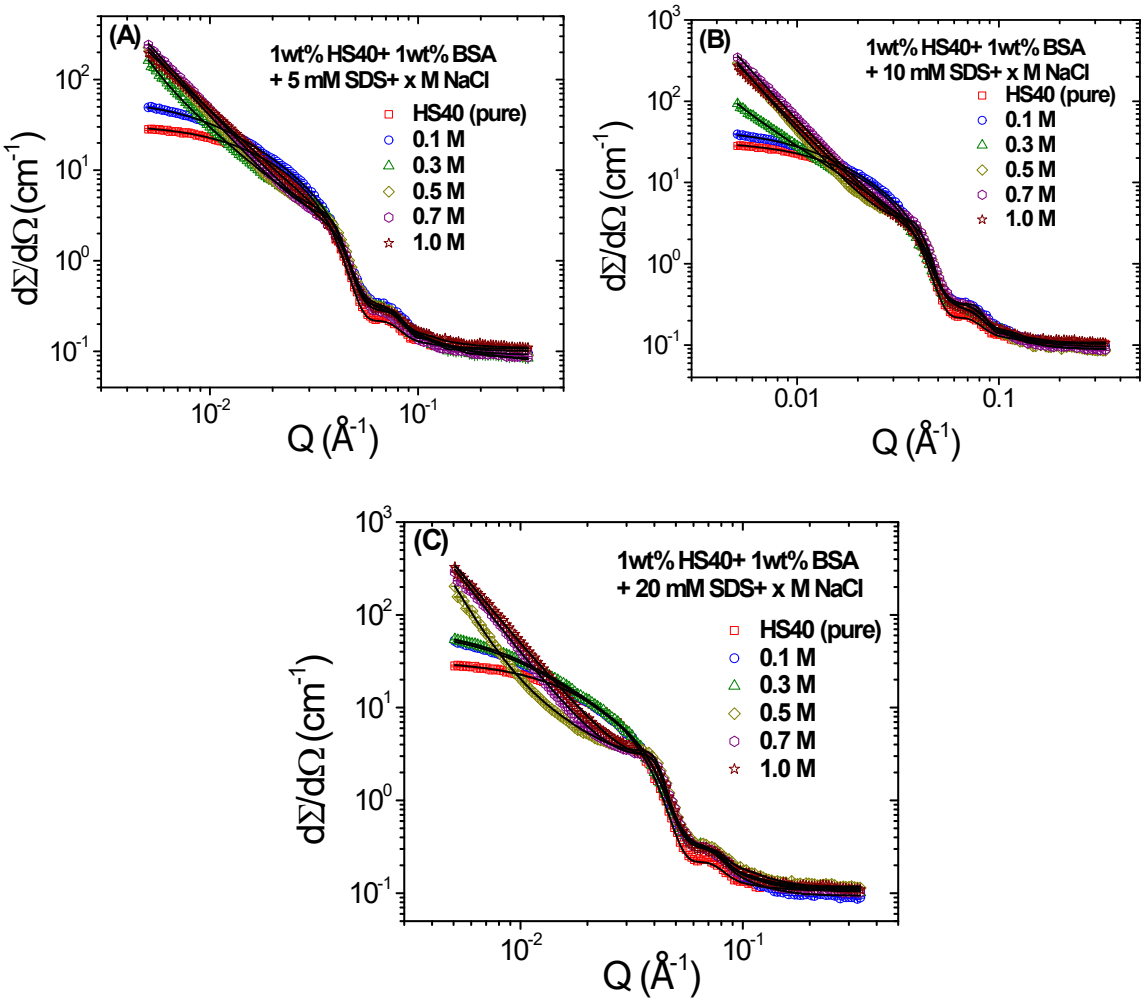


Fig. S5 SANS data of three-component system of 1wt% HS40 silica nanoparticles+1wt% BSA protein+ 0-1.0 M NaCl in presence of varying SDS concentrations (A) 5 mM SDS (B) 10 mM SDS (C) 20 mM SDS.