Supporting Information

Nanoparticle Diffusion within Dilute and Semidilute Xanthan Solutions

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This SI file includes 3 pages and 4 figures.

Figures and captions

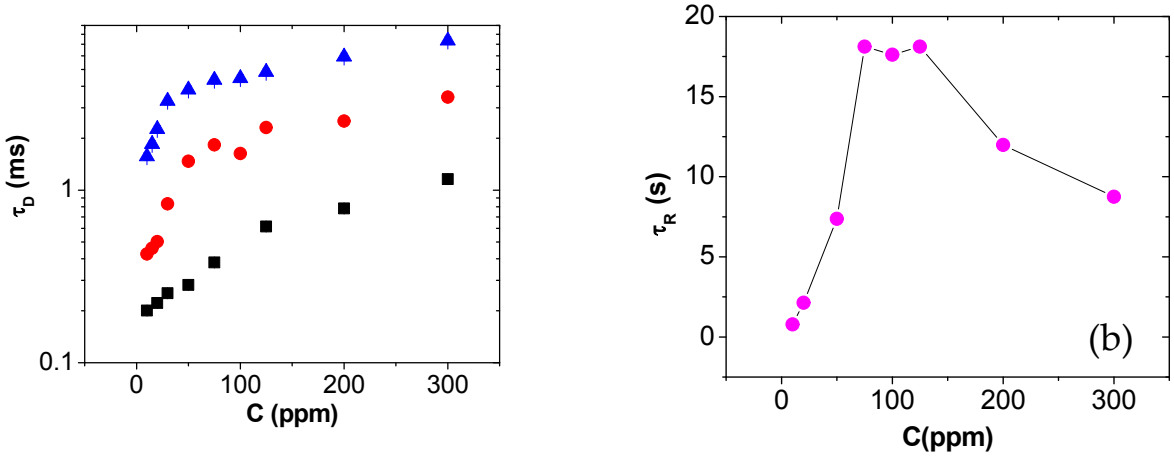

Figure S1. (a) Diffusive time scales of particles with d=5 nm (black squares), d=10 nm (red circles), and d=30 nm (blue triangles) as a function of xanthan concentration. Error bars are indicated, but in some cases they were smaller than the size of the symbol. (b) polymer mesh relaxation time scale (τ_R) for xanthan as was determined from Ref. [10].

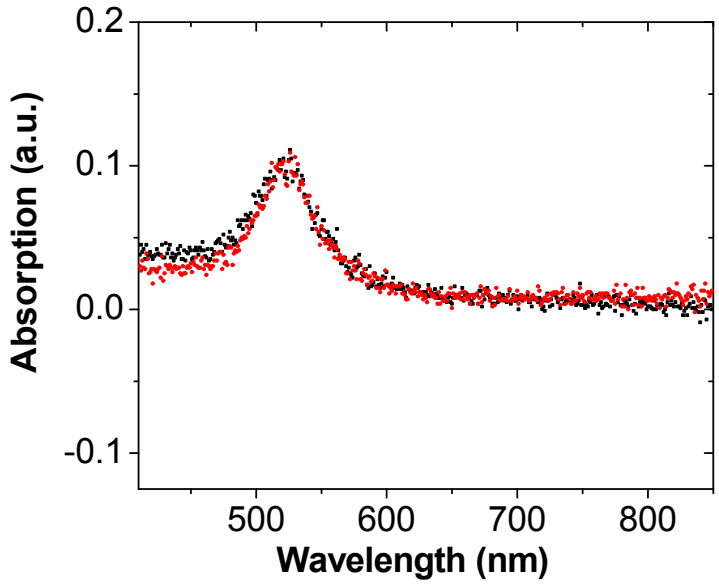

Figure S2. Absorption spectrum of d=30 nm gold particles in water (red circles) and in 10 ppm xanthan gum (black squares) showed no shift in the absorption peak indicating no association between the gold nanoparticles and xanthan.

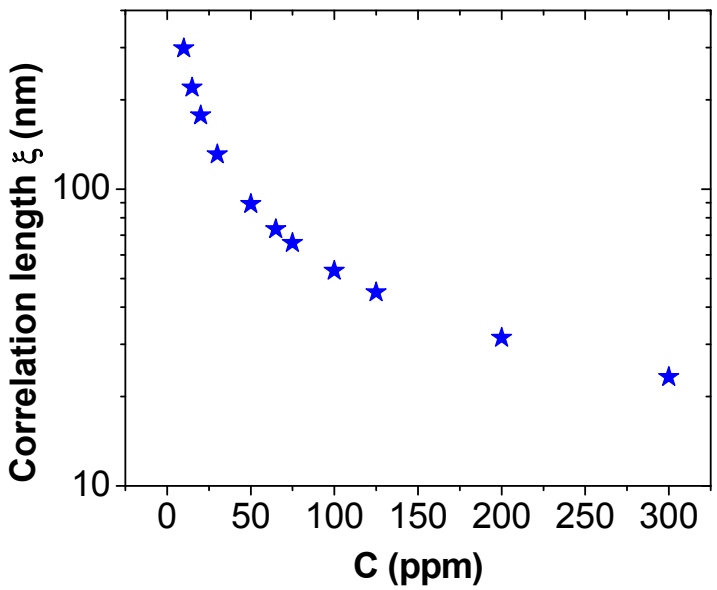

Figure S3. Correlation length as a function of the concentration of the xanthan solution. The correlation length decreases with polymer concentration.

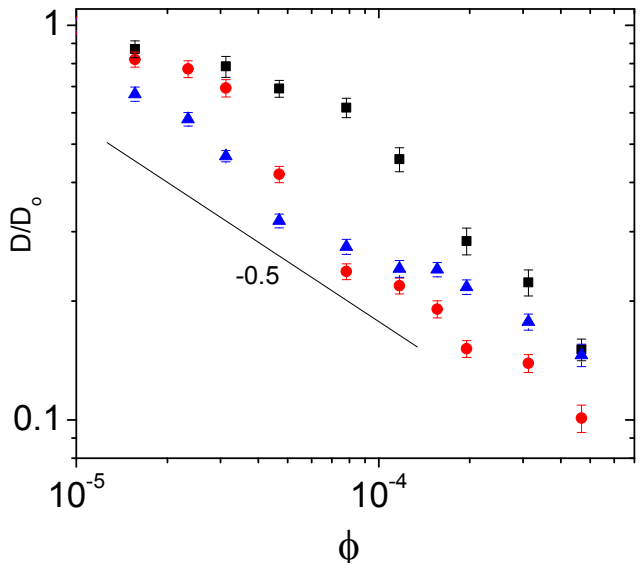

Figure S4. The reduced diffusion coefficient is compared with prediction of model by Altenberger *et. al.* The theory predicts $D/D_o \sim \phi^{-1/2}$, which was not observed in our experiments. The symbols have the same meaning as in Fig. S1a.