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Electronic Supplementary Information

White zein colloidal particles: synthesis and characterization of their optical properties on the single particle level and in concentrated suspensions

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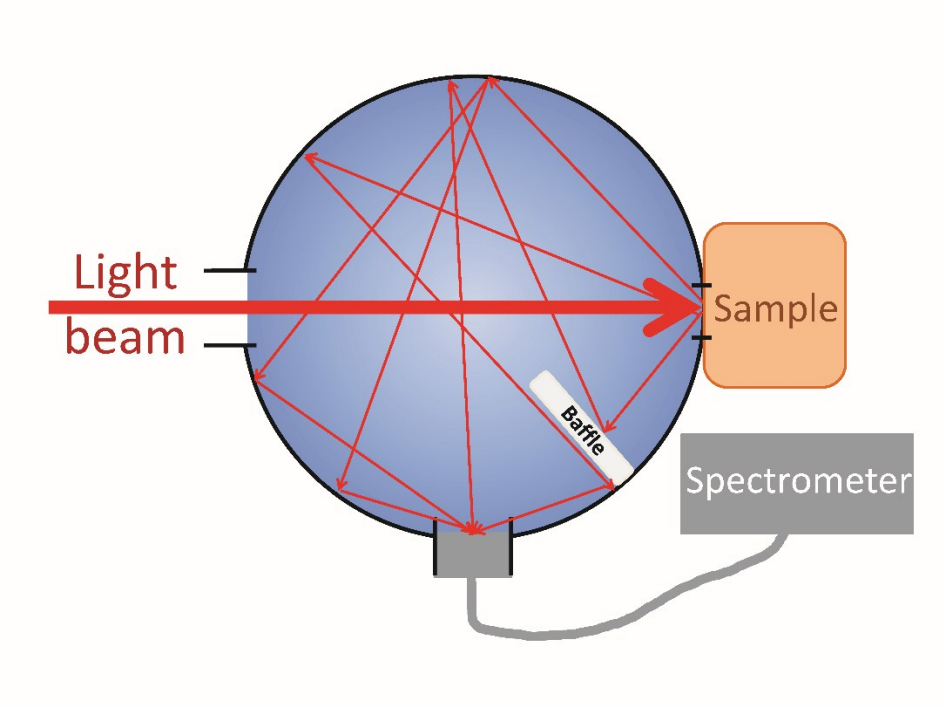

Figure S1: Schematic overview of the setup for total reflection measurements. An Integrating sphere of 15 cm in diameter was used (Labsphere). The sample opening was 12 mm, the detector port opening was 3 mm and the opening for the light beam was 6 mm.

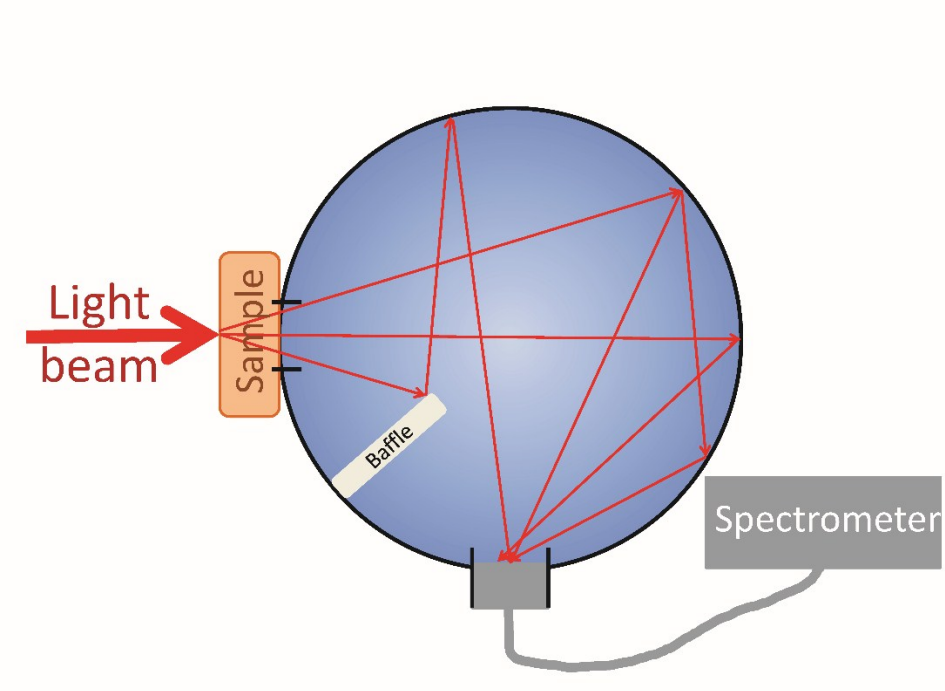

Figure S2: Schematic overview of the setup for total transmission measurements. An integrating sphere of 15 cm in diameter was used (Labsphere). The sample and light beam opening was 18 mm, the detector port opening was 3 mm.

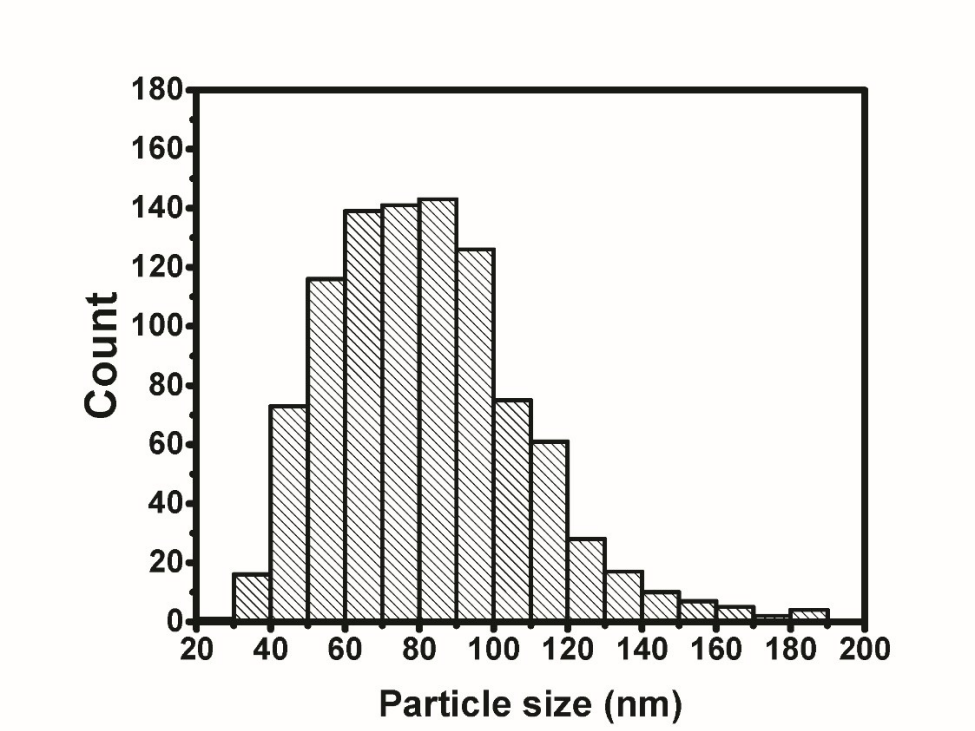

Figure S3: Manually counted particle sizes (diameters) from SEM images of the sample shown in Figure 2b, 960 particles were measured. This sample was synthesized from an 8wt% stock solution.

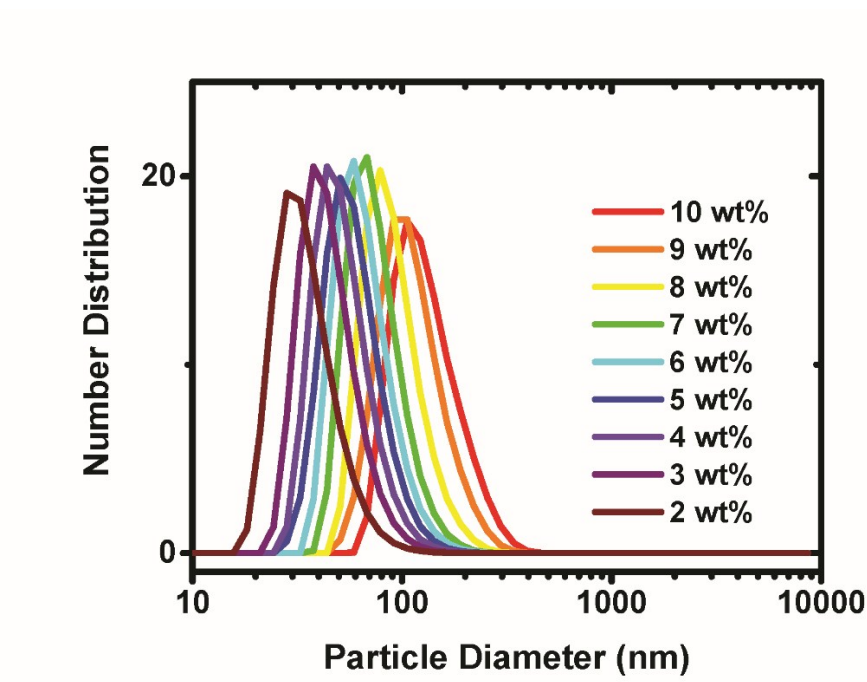

Figure S4: Size distribution data (number distribution) for particles synthesized with varying wt% zein in the stock solutions. Data was taken from Dynamic Light Scattering.

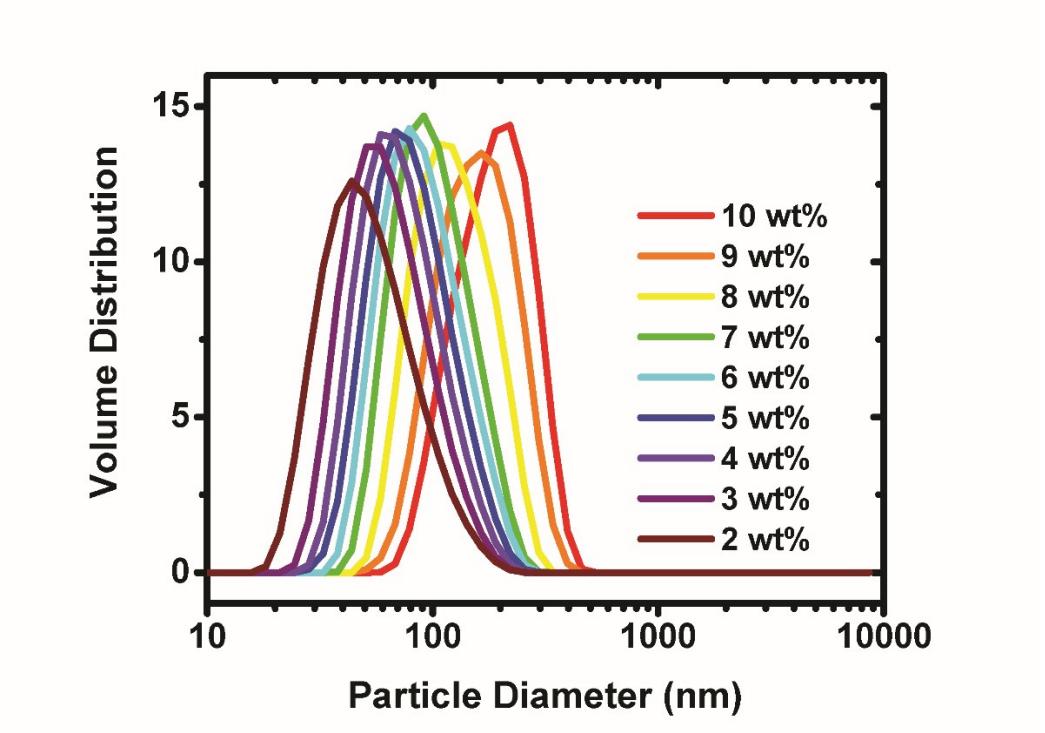

Figure S5: Size distribution data (volume distribution) for particles synthesized with varying wt% zein in the stock solutions. Data was taken from dynamic light scattering

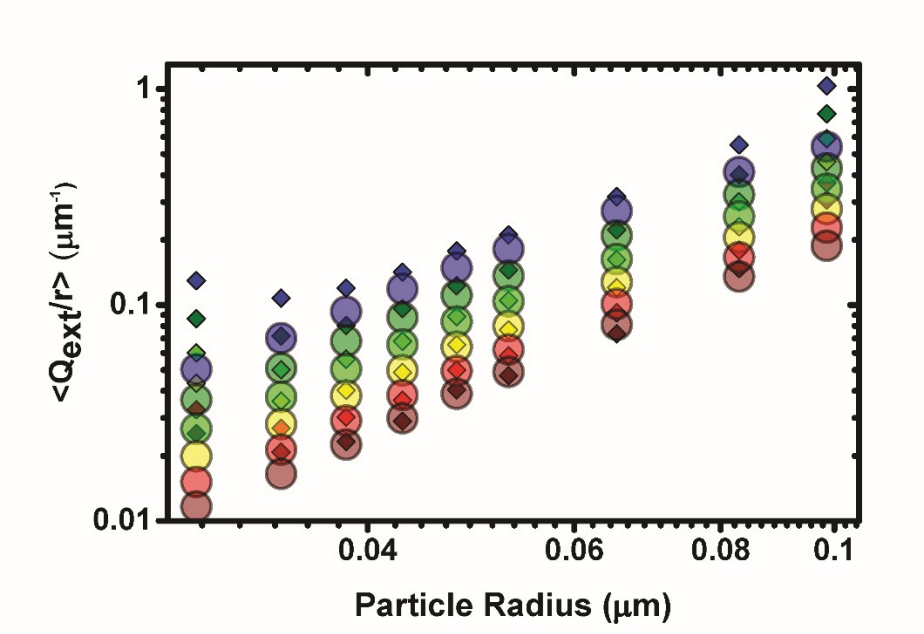

Figure S6: $\langle Q_{ext}/r \rangle$ versus average particle radius measured on dilute samples (small squares) and calculated from Mie theory (large circles). Input for the theory is: a particle refractive index of 1.48, a particle density of 1.1 g cm^{-3}, and the measured particle volume distribution from DLS for each sample. Data are shown for six wavelengths, shown in colors from blue to red: 450, 500, 550, 600, 650, 700 nm.

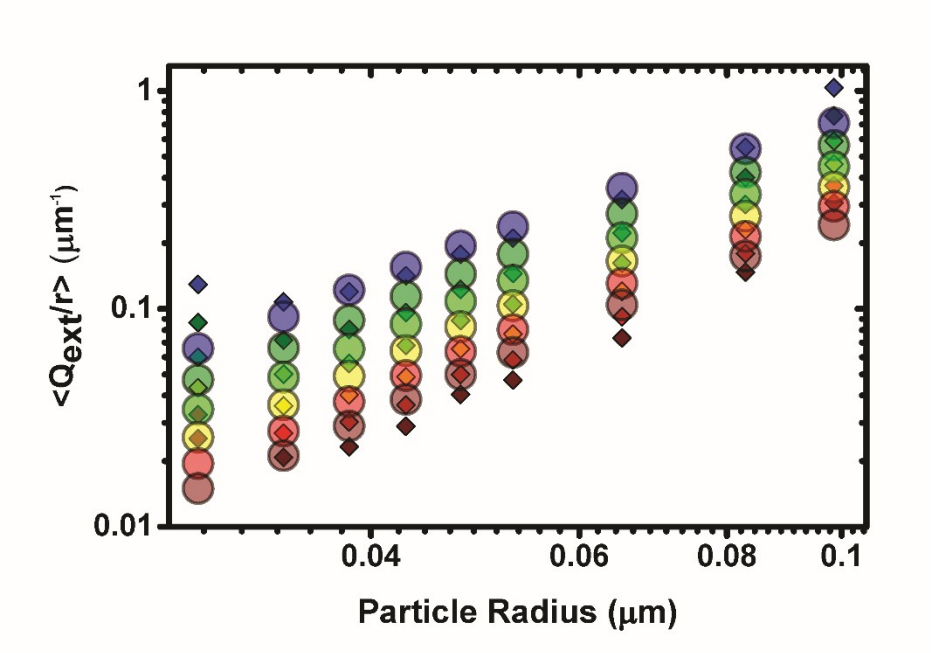

Figure S7: $\langle Q_{ext}/r \rangle$ versus average particle radius measured on dilute samples (small squares) and calculated from Mie theory (large circles). Input for the theory is: a particle refractive index of 1.50, a particle density of 1.1 g cm^{-3}, and the measured particle volume distribution from DLS for each sample. Data are shown for six wavelengths, shown in colors from blue to red: 450, 500, 550, 600, 650, 700 nm.