

# Supporting Information

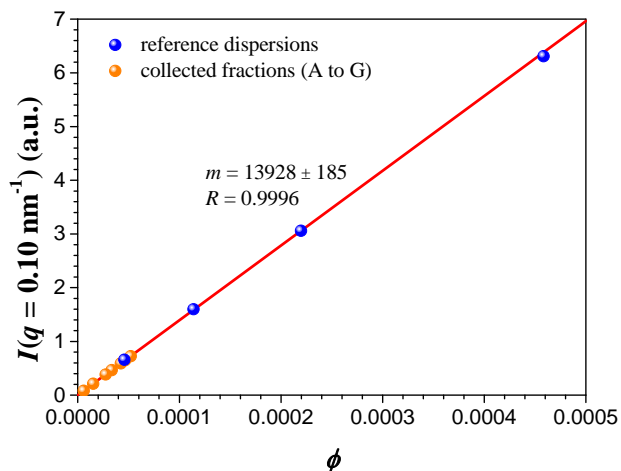
## Isolation and characterization of monodisperse core-shell nanoparticle fractions

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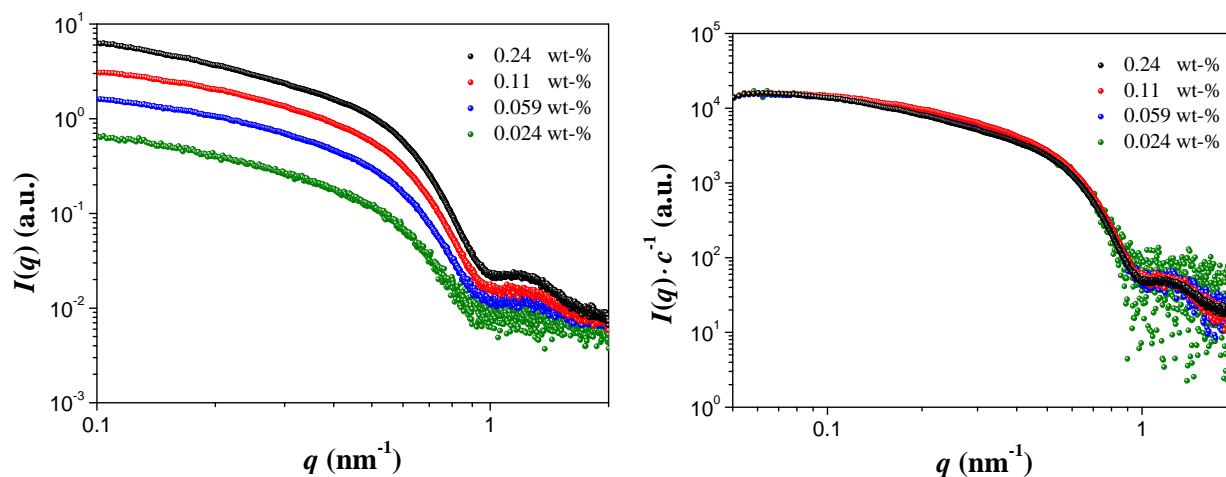
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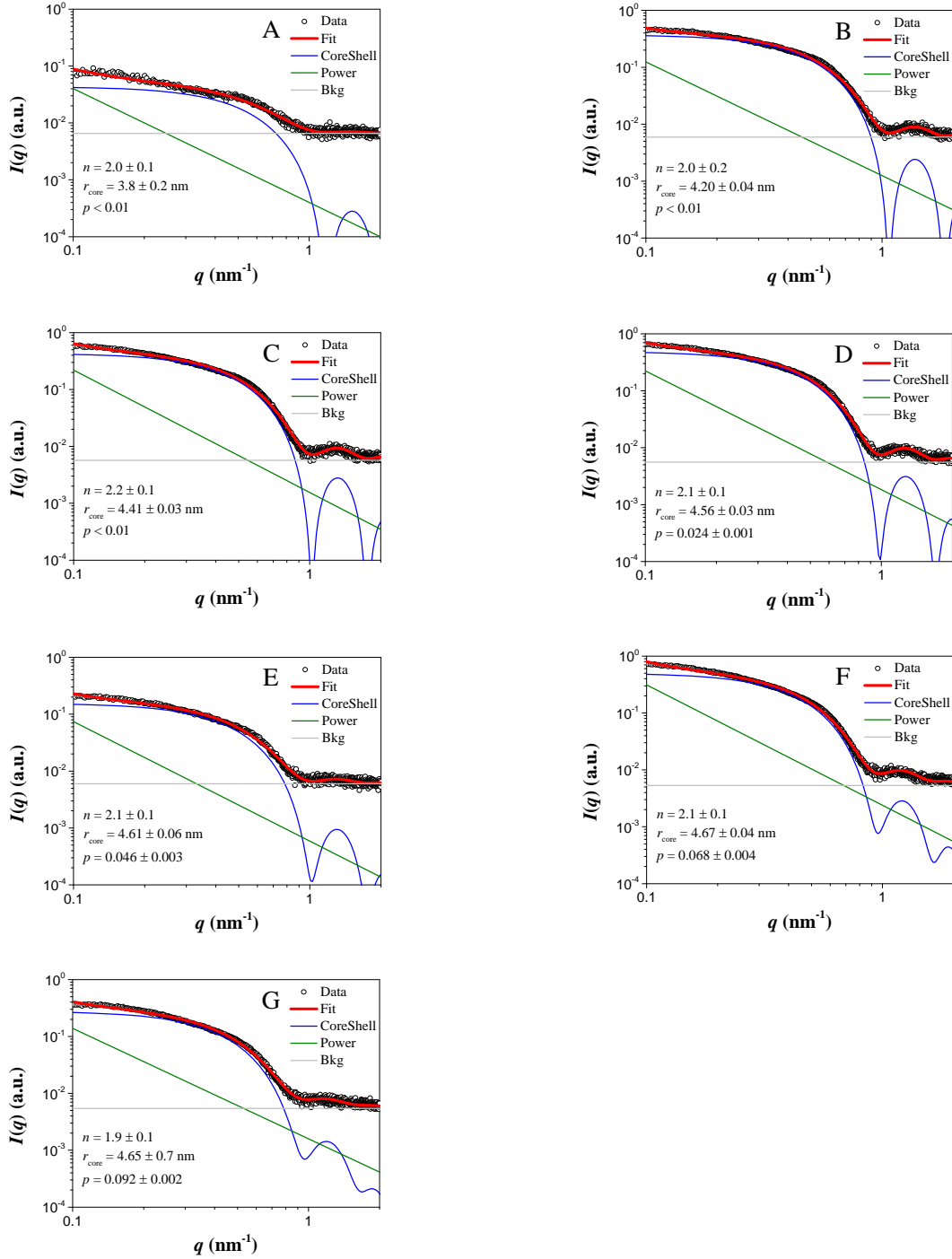
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**Figure SI-1.** Scattering intensity vs volume fraction calibration curve at  $q = 0.10 \text{ nm}^{-1}$  from the four reference dispersions ( $\phi = 4.58 \cdot 10^{-4}$ ,  $2.11 \cdot 10^{-4}$ ,  $1.14 \cdot 10^{-4}$  and  $4.59 \cdot 10^{-5}$ ), and the estimated concentrations for the seven fractions (A to G).



**Figure SI-2.** a) Scattering intensity profile for the four reference dispersions (0.24, 0.11, 0.059 and 0.024 wt-%). b) Form factor for the four reference dispersions (0.24, 0.11, 0.059 and 0.024 wt-%) showing that at these concentrations there is no interaction between the particles:  $S(q) = 1$ .



**Figure SI-3.** Scattering intensity profile (empty black symbols) and the form factor fitting curve (blue curve) following the polydisperse core-shell spherical particle model with a fix shell thickness ( $t_{\text{shell}} = 3.3 \pm 0.2$  nm), and the fluctuation effect from the adsorbed polymer layer as a power-law model (green line) for the seven collected fractions (A to G).