Scattering Theory

The cross section within the small angle approximation for particles in a solution reads

<math>\frac
Unknown macro: {d Sigma}
Unknown macro: {d Omega}
\equiv n \Delta \rho^2 V_p^2 \left| S(\mathbf
Unknown macro: {q}
)\right|^2 P(\mathbf
)</math>

where the particle density is given by

<math>n = \frac
Unknown macro: {V}
</math>

The scattering length density contrast between the particles and the solvent reads

<math> \Delta \rho(\mathbf
Unknown macro: {r}
) = \rho_b(\mathbf
) - \rho_s </math>

The particle form factor reads

<math> P(\mathbf
Unknown macro: {q}
) = \left| \frac
Unknown macro: {1}
\int dV e^{-i \mathbf
Unknown macro: {q}
\cdot \mathbf{r}} \right|^2</math>