

# Scattering Theory

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

$\frac{d\sigma}{d\Omega}$

Unknown macro: {d Omega}

$\approx n \Delta \rho^2 V_p^2 \left| S(\mathbf{q}) \right|^2 P(\mathbf{q})$

Unknown macro: {q}

where the particle density is given by

$n = \frac{N}{V}$

Unknown macro: {N}

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

$\Delta \rho = \rho_b - \rho_s$

Unknown macro: {r}

The particle form factor reads

$P(\mathbf{q}) = \left| \frac{1}{V} \int_V e^{-i \mathbf{q} \cdot \mathbf{r}} dV \right|^2$

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