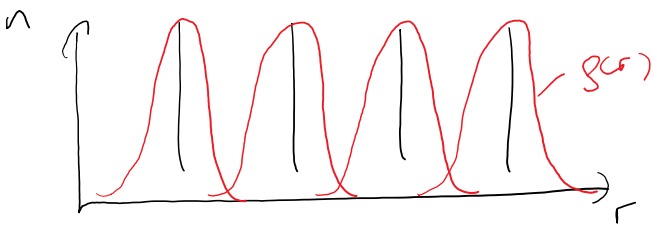
Positions of the particles | Properties / Structure of particles

↓ ↓

$g(r)$ or $S(q)$ $\quad$ $\rho(r)$ or $F(q)$

↑ Form factor

$$F(q) = \int \rho(r)\, e^{i\vec{q}\cdot\vec{r}}\, d^3r$$



$$n(r) = \sum \rho(r - r_j)\, \delta(r_j)\, d^3r$$

$$f * g(y) = \int f(x)\, g(x - y)\, dx \qquad = \rho(r) * g(r)$$

↳ $G(q) = S(q) \cdot F(q)$

↑ total scattering amplitude