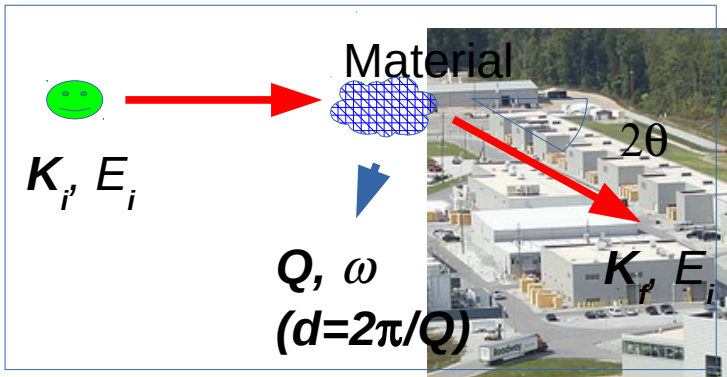
Neutron-matter interaction

$$K_f = K_i + Q$$
$$E_f = E_i + \omega$$



Bragg's law (diffraction on structure – atoms separated by distance *d*)

$$n\lambda = 2\pi / K_i = 2d\sin\theta$$

Scattering law (intensity per solid angle and energy, dynamics)

Holy Book (Squires)

$$\frac{d^2\sigma}{d\Omega\, dE_f} = \frac{K_f}{K_i}\left[\frac{\sigma}{4\pi} S(Q,\omega)\right]$$

Dynamical structure factor *S(Q,ω)* is characteristic of each material
Reflects ordering of matter (atom/molecule positions – movements - domains)