Partial reaction rates

The macroscopic cross section is the sum of the partial cross sections for capture, fission, scattering, etc.

This means the reaction rate can also be subdivided into these separate contributions.

$$\Sigma_{total} = \Sigma_{abs} + \Sigma_{scat}$$

$$\Sigma_{abs} = \Sigma_{cap} + \Sigma_{fis}$$

$$R_X = \phi \cdot \Sigma_X$$

ϕ is neutron flux density $\left(\text{cm}^{-2}.\text{s}^{-1}\right)$

Σ_X is macroscopic x-section for reaction X $\left(\text{cm}^{-1}\right)$