3c Scattering

\[ \frac{d\Sigma}{d\Omega} \]

\[ \bar{l} \]

\[ \bar{l} = \text{number of particles per unit time per unit area per beam} \]

\[ d\Sigma = \text{number of particles scattered into } d\Omega \text{ per unit time} \]

Cross section \[ \sigma(\theta, y) = \frac{1}{\bar{l}} \frac{d\Sigma}{d\Omega} \]

Total cross-section \[ \sigma_{\text{tot}} = \int d\omega \int d\theta \sigma(\theta, y) \]

\[ d\omega = \sin\theta \, d\theta \, d\phi \]

We now work out the case of axial symmetry.

Impact parameter \[ |\bar{l}| = m \circ \bar{l} \]

Number of particles scattered into \( [\theta, \theta + d\theta] \) per unit of incoming flux per unit time is \[ \frac{d\Sigma}{d\Omega} = 2\pi \sigma(\theta) \sin\theta \, d\theta \]