THE AND METHOD

$N_{AND/BX} = 1 - e^{-\varepsilon_A \mu} - e^{-\varepsilon_C \mu} + e^{-\varepsilon_{sing} \mu}$ $\quad \mu = ?$ Cannot be solved analytically

---

MBTS approximation $\quad \mu = \dfrac{-\ln(1 - N_{AND/BX})}{\varepsilon_{coin}}$ $\quad L = \dfrac{-f_{BX} \times \ln(1 - N_{AND/BX})}{\sigma_{vis}^{AND}}$

Pythia: $\sigma_{vis}^{AND} = \varepsilon_{coin} \times \sigma_{inel} = 0.818 \times 71.5 = 58.49$ mb

Phojet: $\sigma_{vis}^{AND} = \varepsilon_{coin} \times \sigma_{inel} = 0.901 \times 76.2 = 68.65$ mb

VDM: $\sigma_{vis}^{AND} = 51.88$ mb

LUCID approximation for low μ $\quad \mu = \dfrac{N_{AND/BX}}{\varepsilon_{coin}}$ $\quad L = \dfrac{f_{BX} \times N_{AND/BX}}{\sigma_{vis}^{AND}}$

Pythia: $\sigma_{vis}^{AND} = \varepsilon_{coin} \times \sigma_{inel} = 0.2201 \times 71.5 = 15.73$ mb

Pythia+MBTS: (run 152166) $\sigma_{vis}^{AND} = \varepsilon_{coin} \times \sigma_{inel} = 0.1988 \times 71.5 = 14.23$ mb

Phojet: $\sigma_{vis}^{AND} = \varepsilon_{coin} \times \sigma_{inel} = 0.2212 \times 76.2 = 16.84$ mb

VDM: $\sigma_{vis}^{AND} = 12.40$ mb