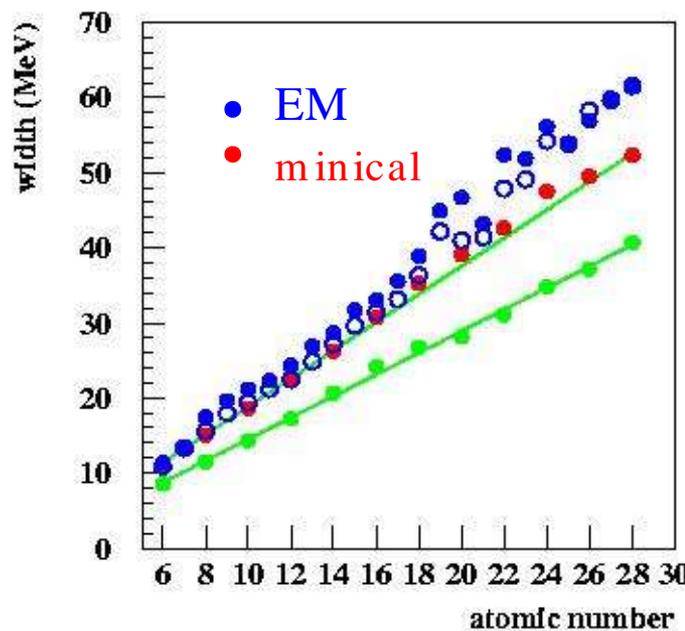
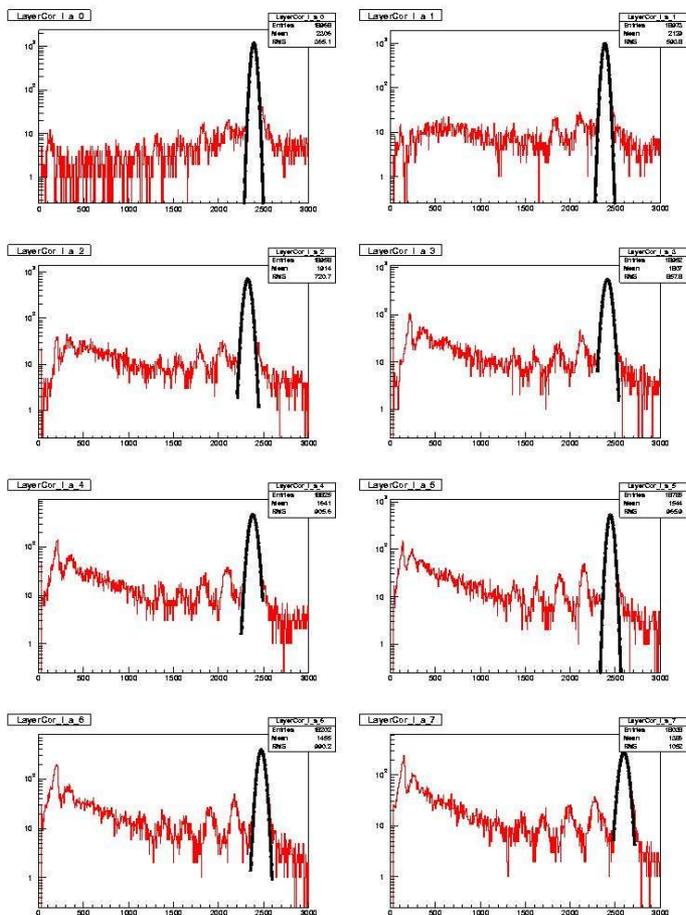


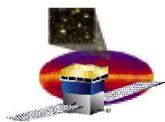
# Ionisation-peaks' widths



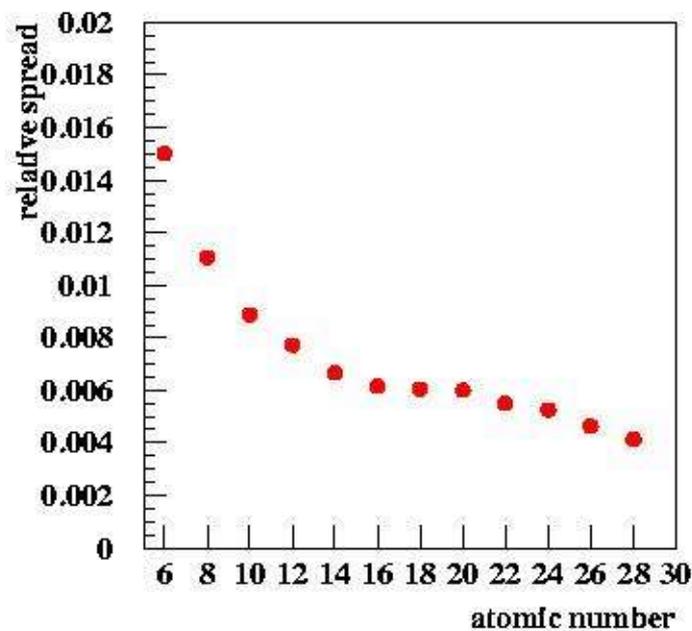
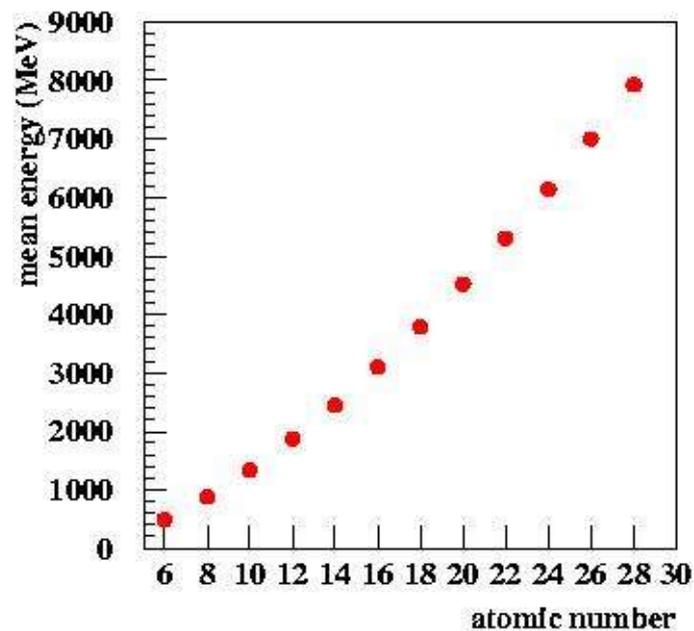
GEANT4 x1.3  
GEANT4

Experimental broadening for monoenergetic protons or

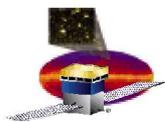
cosmic muons: 0.6 MeV (~5%)



## Relative spread for the ion peaks

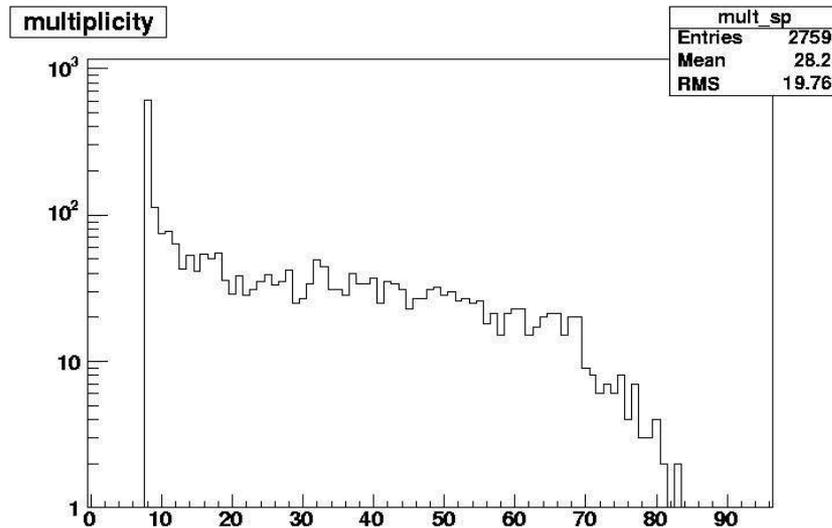
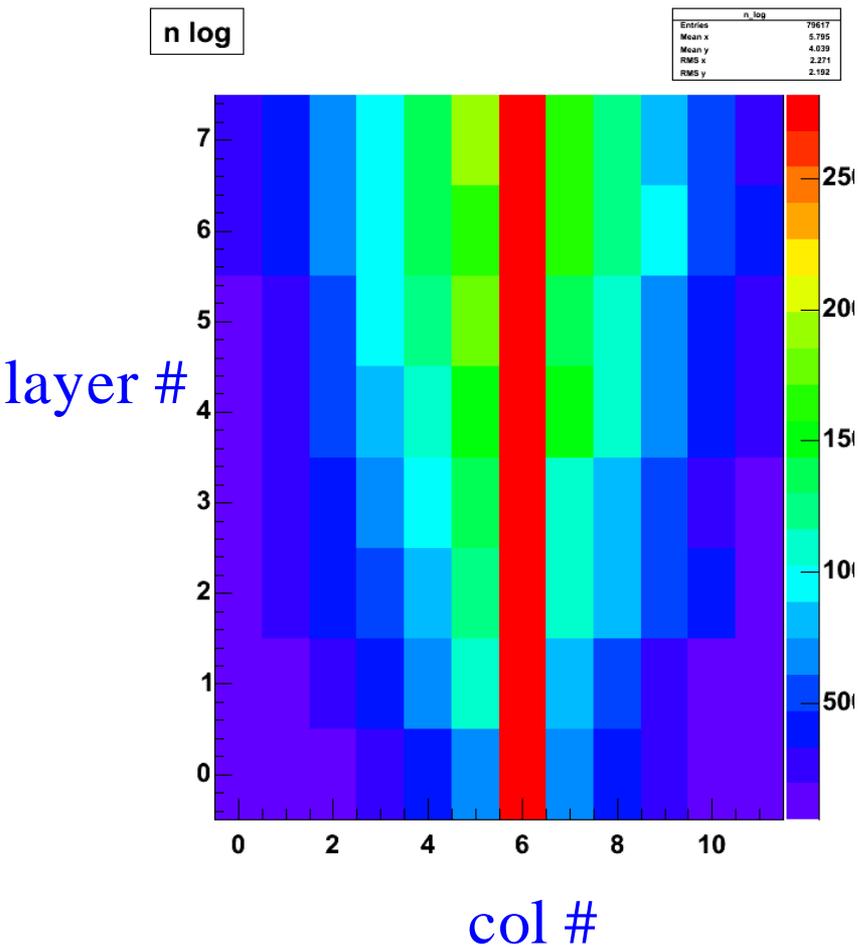


$$\text{Relative spread} = \sqrt{(\sigma_{\text{meas}}^2 - \sigma_{\text{cal}}^2) / \langle E_{\text{meas}} \rangle}$$



# Features of nuclear interactions

## Si ions



Hit

multiplicity

We have similar data for incident particles from p to Fe