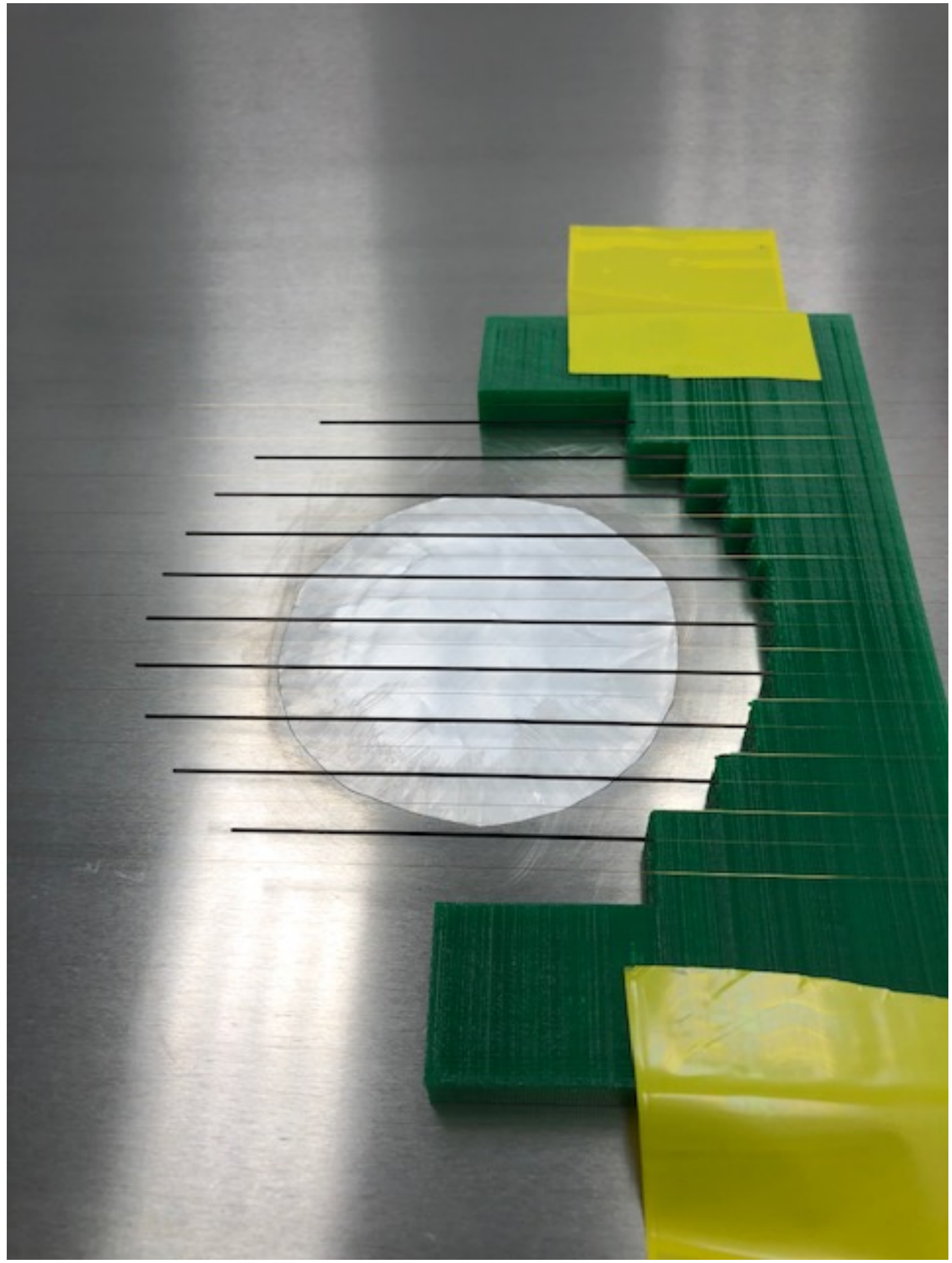
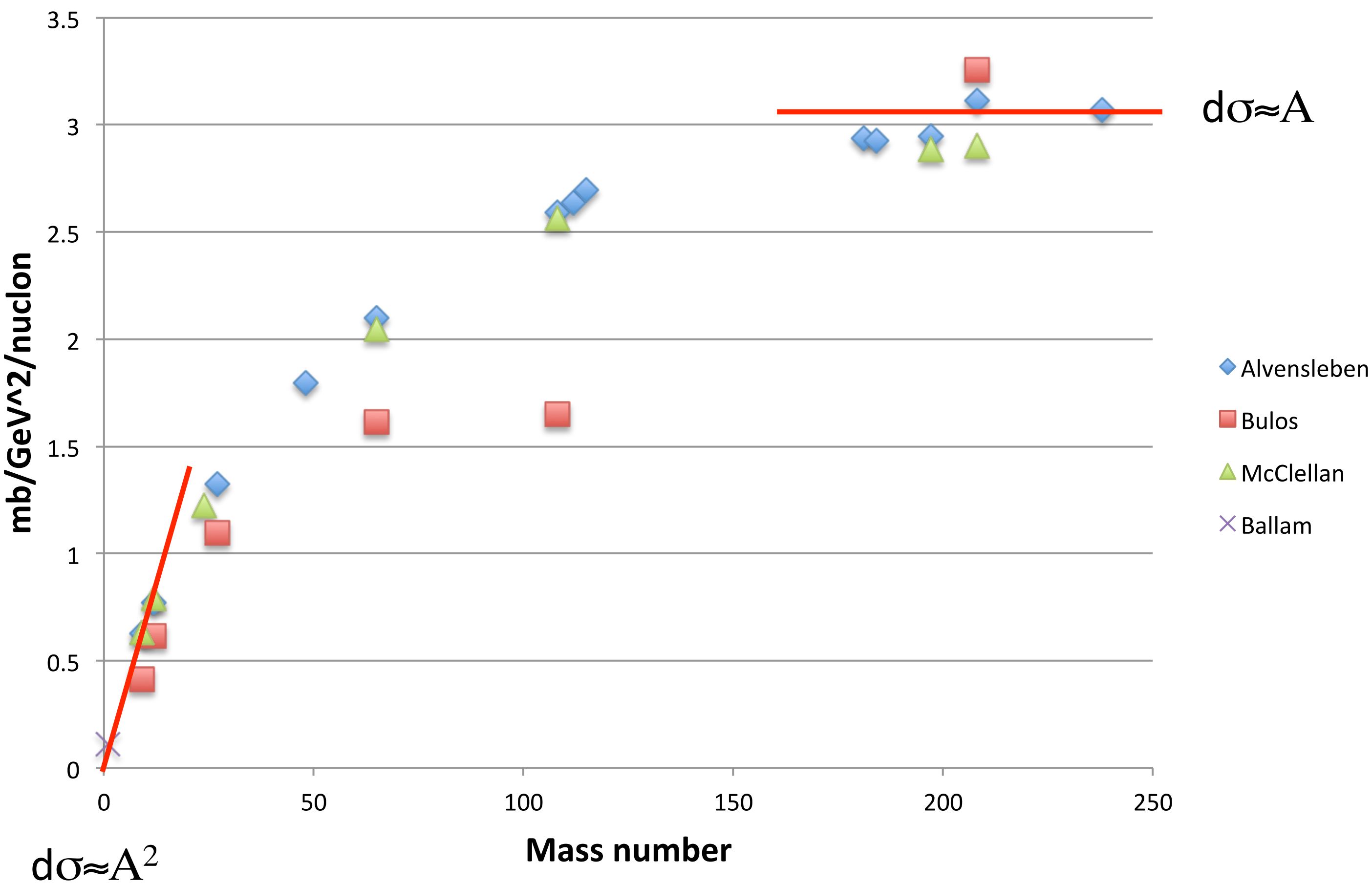
Carbon tube installation



Target studies for CPP

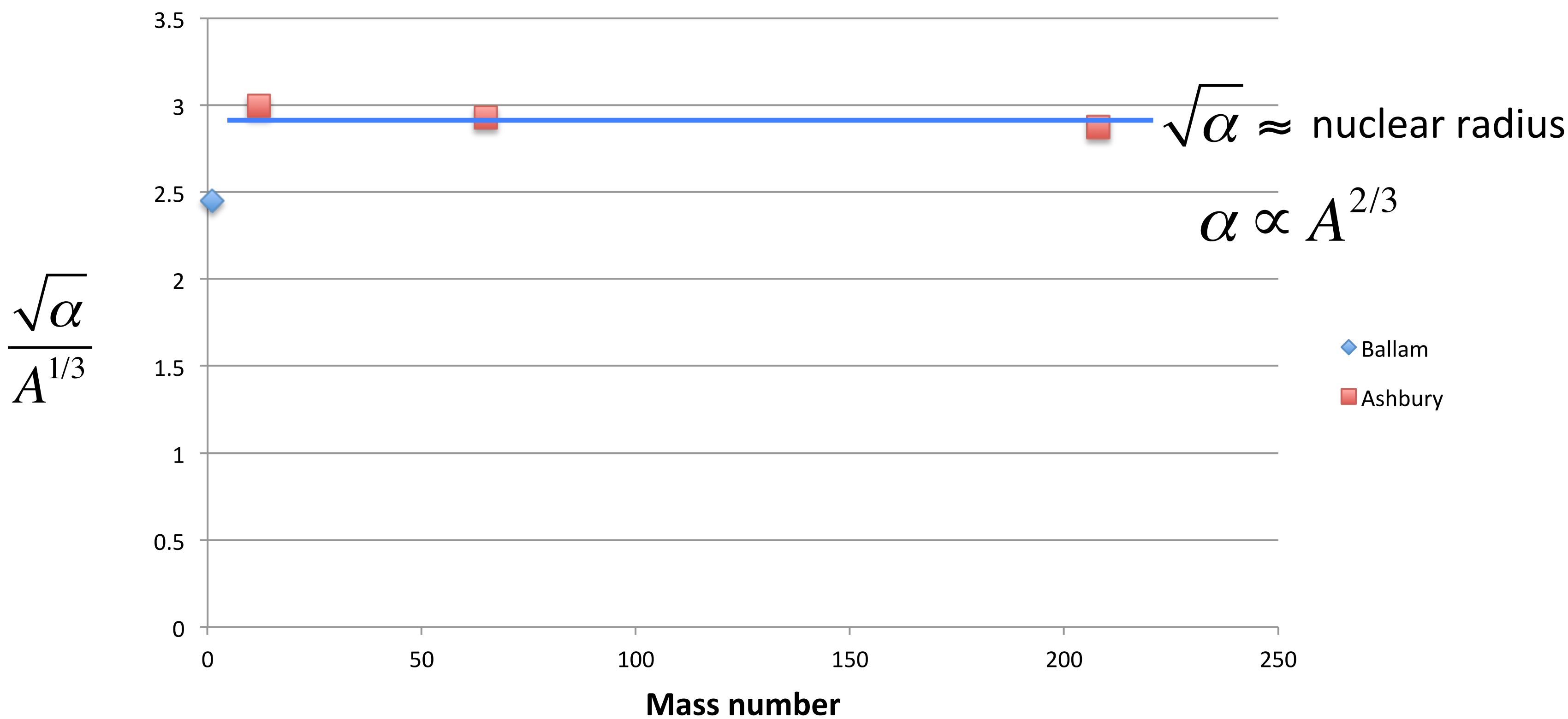
$$\frac{d\sigma_{\gamma A\to\rho}(t)}{dt} \cong \frac{d\sigma_{\gamma A\to\rho}(t_{\min})}{dt} e^{-\alpha t}$$

$$\frac{\frac{d\sigma_{\gamma A\to\rho}(t_{\min})}{dt}}{A}$$



dσ≈A^2

$$\frac{d\sigma_{\gamma A\to\rho}(t)}{dt} = \frac{d\sigma_{\gamma A\to\rho}(t_{\min})}{dt} e^{-\alpha t}$$



$$\sigma_{\gamma A \to \rho} = \frac{d\sigma_{\gamma A \to \rho}(t_{\min})}{dt} \int_{t\min}^{\infty} e^{-\alpha t} dt = \frac{1}{\alpha} \frac{d\sigma_{\gamma A \to \rho}(t_{\min})}{dt}$$

$$\sigma_{\gamma A \to \rho}(A < 20) \propto A^{4/3}$$

$$\sigma_{\gamma A \to \rho}(A > 150) \propto A^{1/3}$$

Integrate Primakoff and ρ^0 cross sections over:

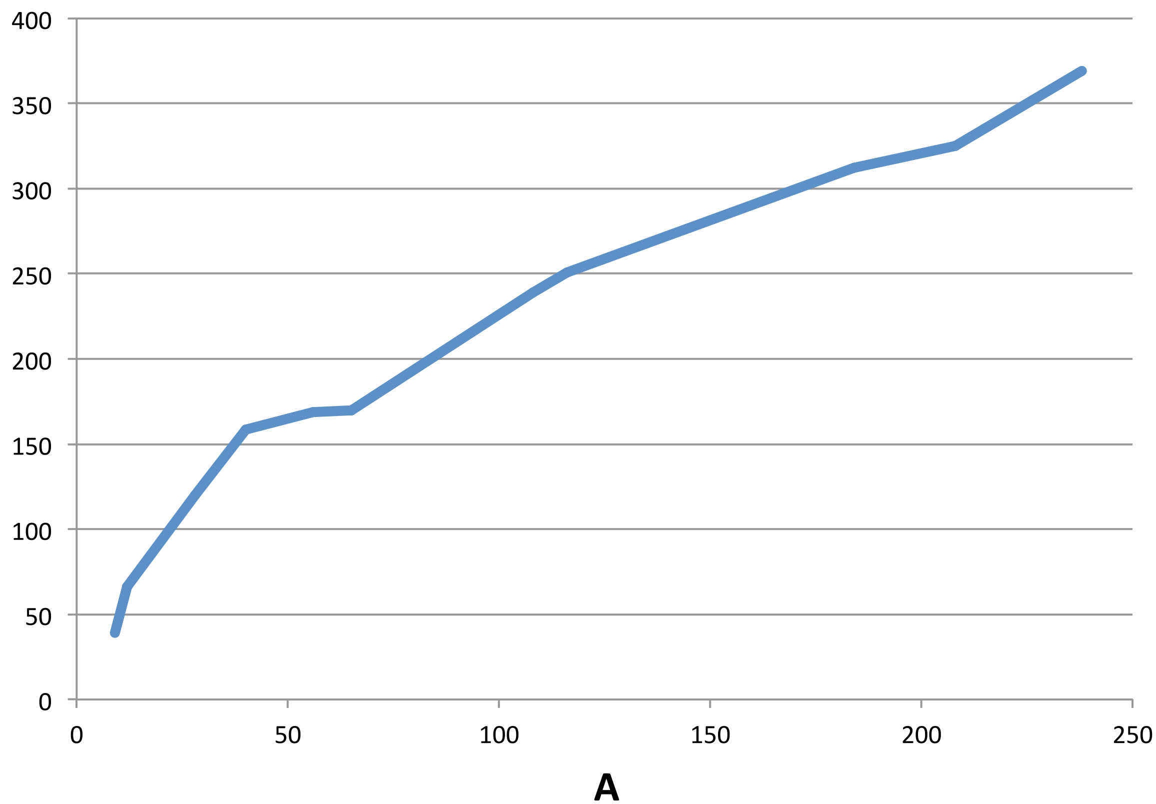
1. approximate range of angles accepted by the MWPCs
2. $\pi\pi$ invariant mass less than 500 MeV
3. momentum transfers less than

$$q_{\perp} < \frac{\hbar c}{R_{1/2\,density}}$$

this will,

- minimize final state absorption of the pions, and
- reduce ρ^0 signal relative to Primakoff.

Overall “Figure Of Merit” = Primakoff rate/RL $\times \dfrac{\sigma_{primakoff}}{\sigma_{\gamma A \to \rho}}$



Conclusions: by this measure ^{238}U is a slightly better target per R.L. than ^{208}Pb, but not by much. ^{208}PB is significantly better than ^{120}Sn.