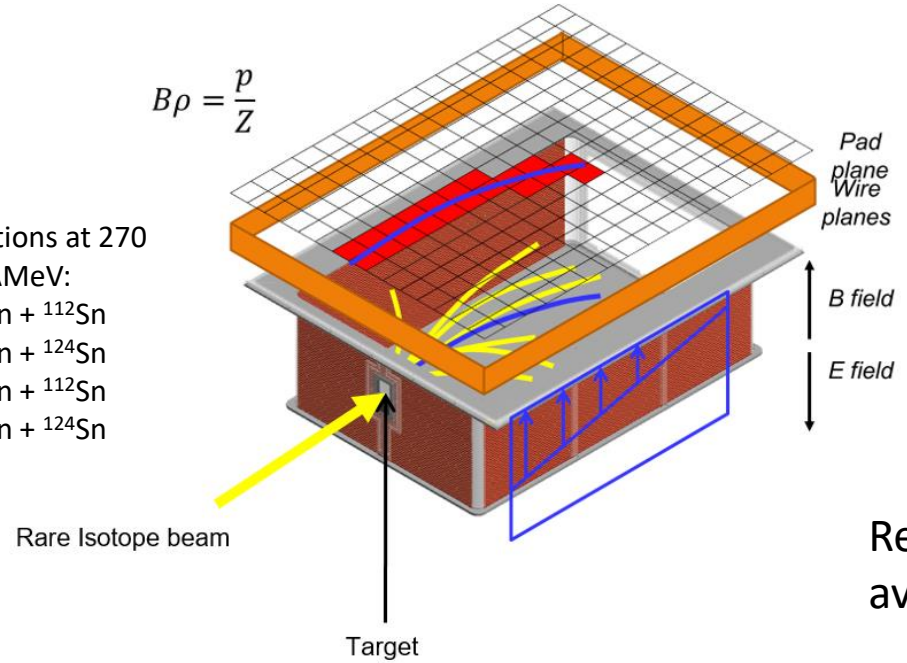
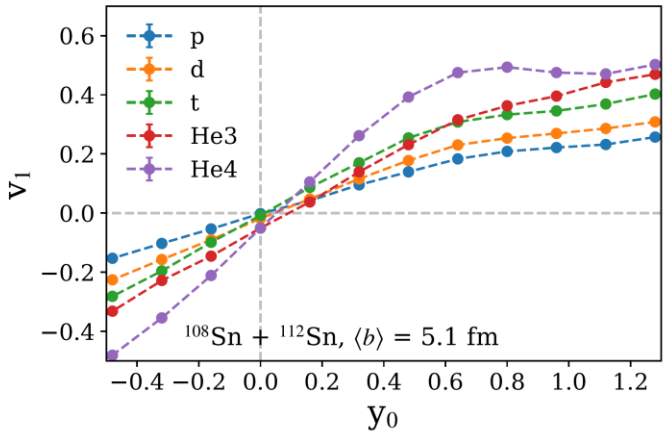
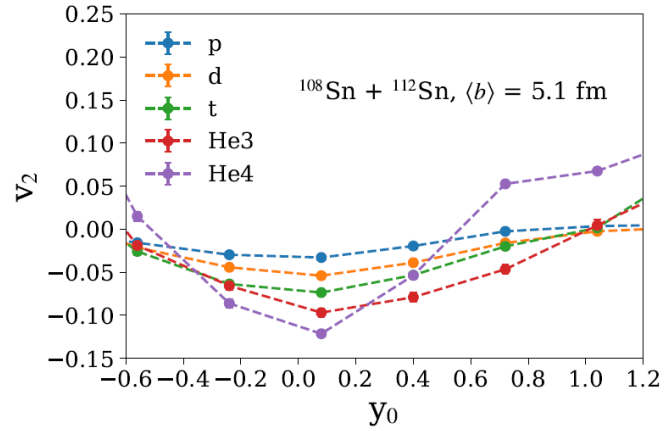
# Flow and stopping measurements from the SπRIT experiment

4 Reactions at 270 AMeV:
$^{108}$Sn + $^{112}$Sn
$^{112}$Sn + $^{124}$Sn
$^{124}$Sn + $^{112}$Sn
$^{132}$Sn + $^{124}$Sn



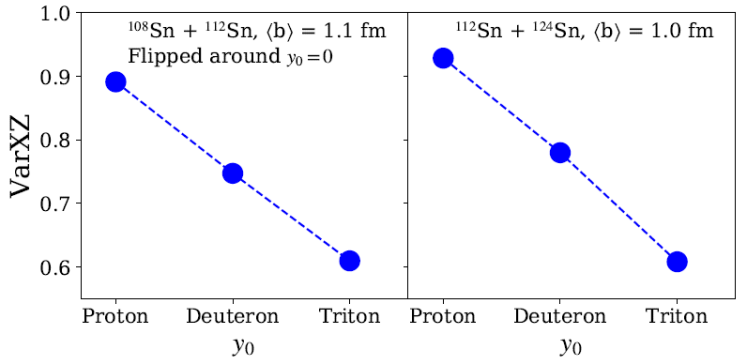

Direct flow and elliptical flow

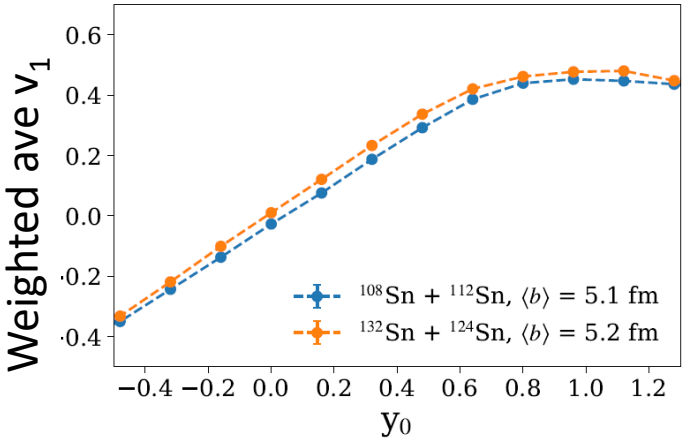


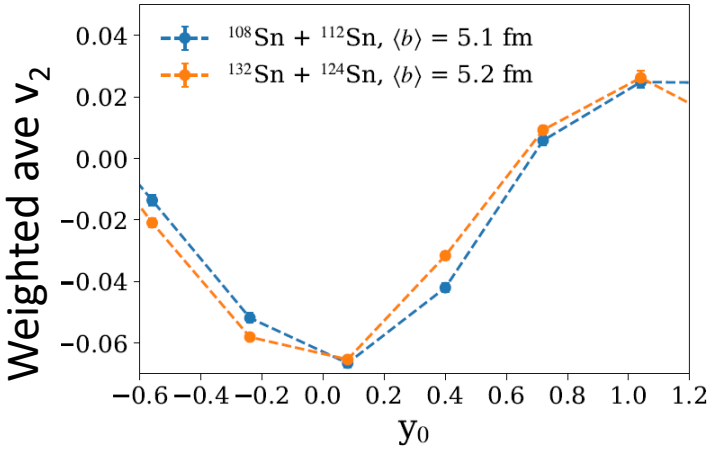




Reduce sensitivity from clusterization using weighted average flow= average(v(p), v(d), v(t), 2*v(He3), 2*v(He4))

Stopping: VarXZ = VarX/VarZ



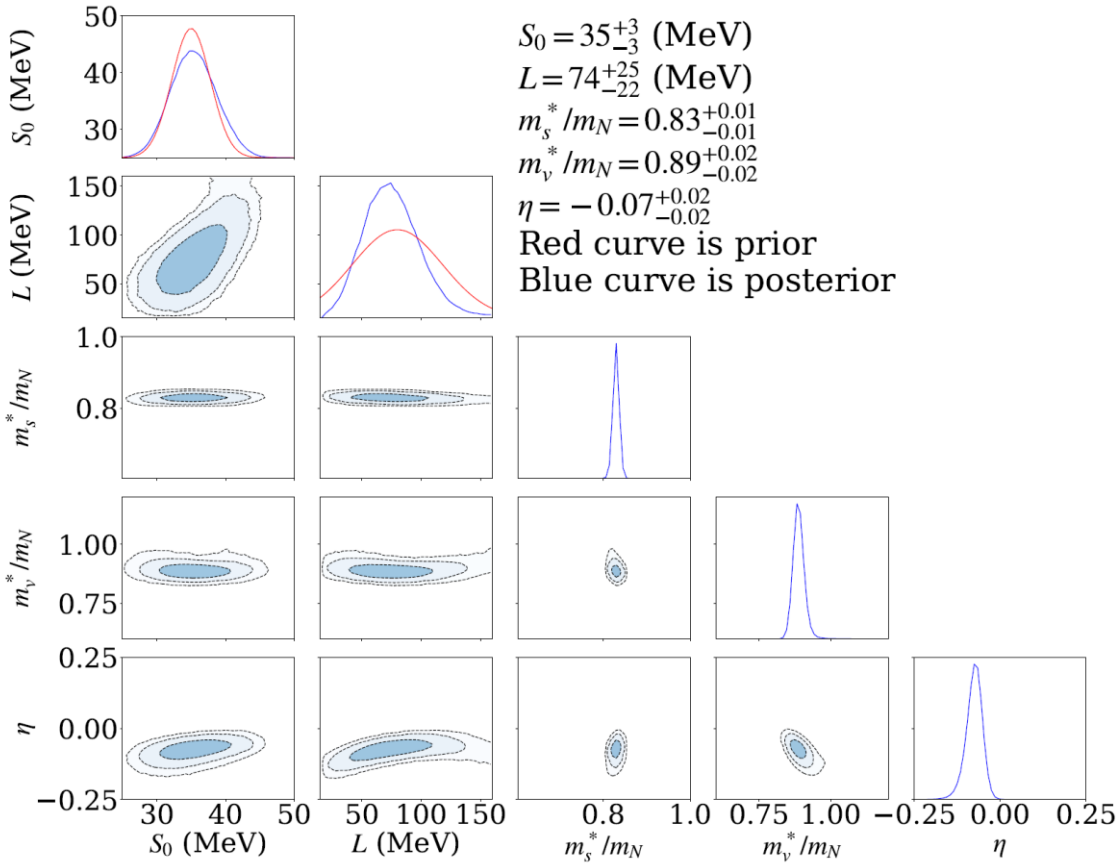
# Multi-parameter fit by comparing data with ImQMD's predictions

1. Train a Gaussian process to emulate ImQMD.
2. Constrain EoS parameters with Bayesian analysis by comparing emulator's predictions with measured VarXZ and averaged flow simultaneously.

$$f_I = \frac{m_N}{m_s^*} - \frac{m_N}{m_v^*}$$

$$\frac{\Delta m_{np}^*}{\delta} \approx -2 f_I \left(\frac{m_s^*}{m_N}\right)^2 .$$

$$\frac{\Delta m_{np}^*}{\delta} = -0.11 \pm 0.04$$




EoS parameters are correlated to effective mass difference. This can be used to tighten constraint on other EoS parameters.