



Muon plume beam studies and simulations

Adam Watts

AD, External Beamlines

05/13/2020

G4BL model additions

Currently working on adding the following to the G4BL model:

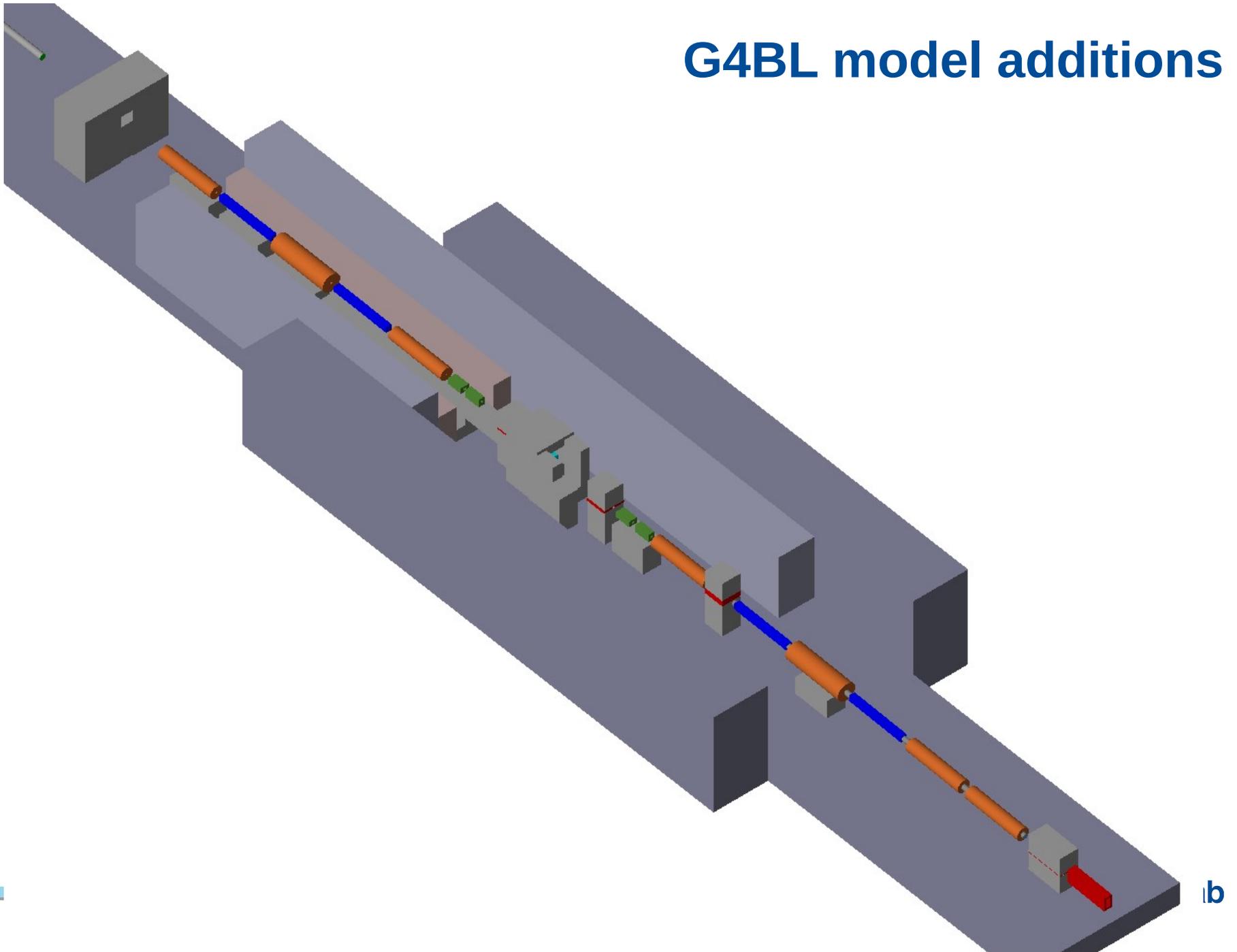
- MC7 shielding blocks and equipment: working from Yagmur's sketch to add in MC7 blocks
- Jason St. John is asking LArIAT folks for a model or drawing of the range stack so I can add that as well
- Magnetic fields in the magnet yoke iron.

Questions from Friday's talk

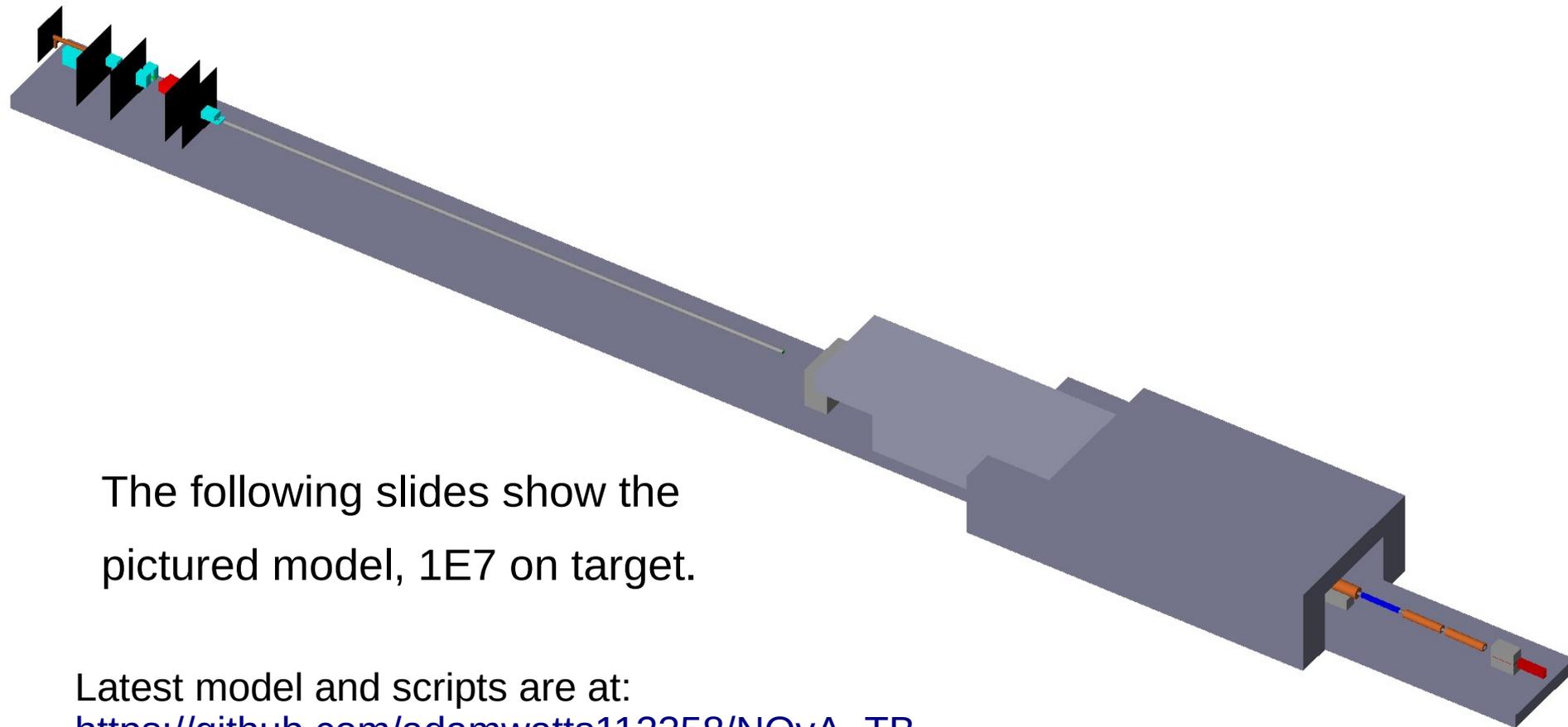
A couple concerns came up on Friday that I dug into more:

- The “shadow” I thought I was seeing on the NOvA detector in G4BL was an error: it's the only virtual detector offset in X from the secondary beam, and I didn't account for that in the plot limits. Corrected plot is in this talk.
- From the G4BL user guide: global coordinates Z is down the beamline center, X is beam left, Y is beam up.

G4BL model additions



G4BL model additions

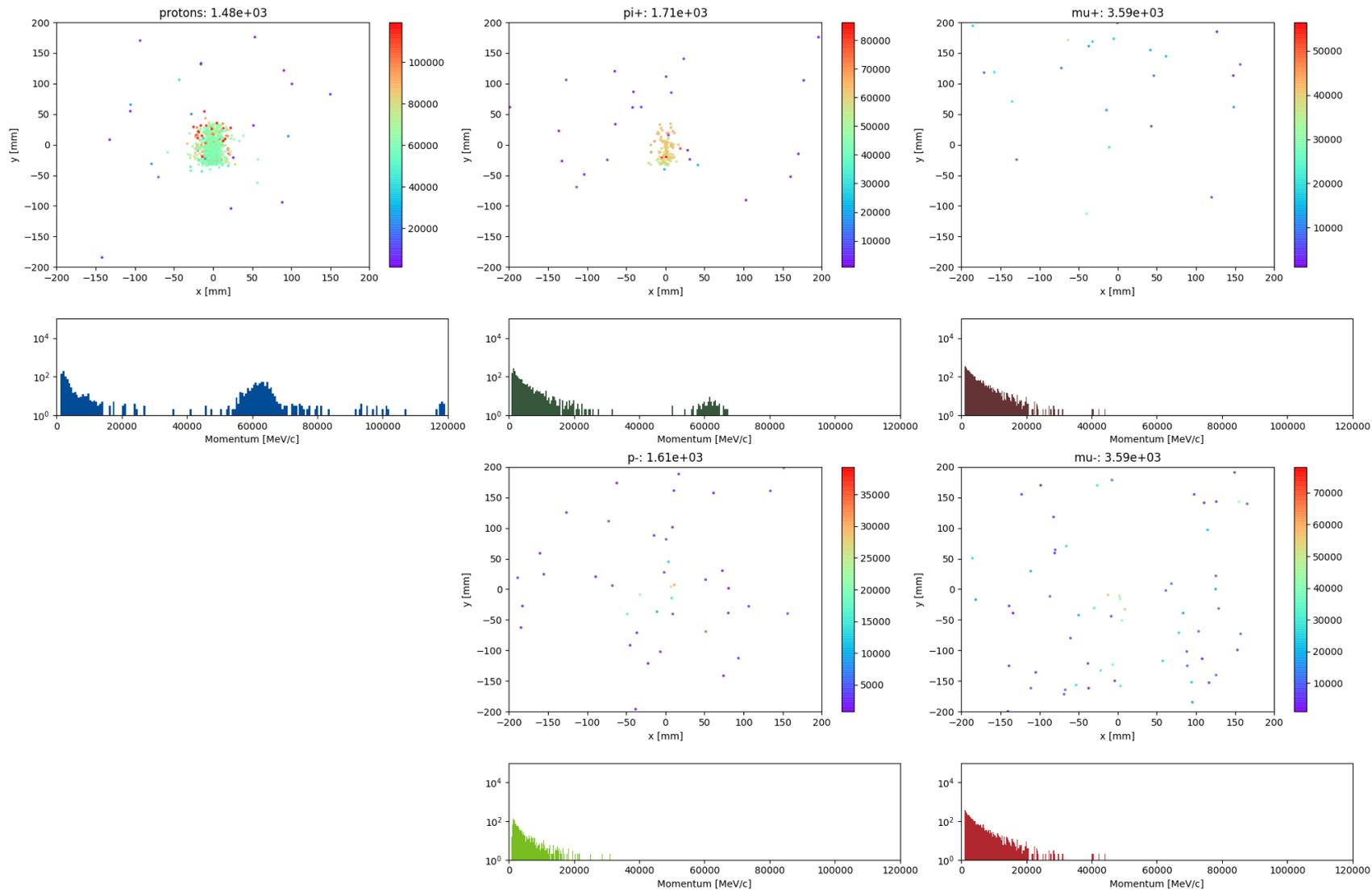


The following slides show the pictured model, 1E7 on target.

Latest model and scripts are at:
https://github.com/adamwatts112358/NOvA_TB

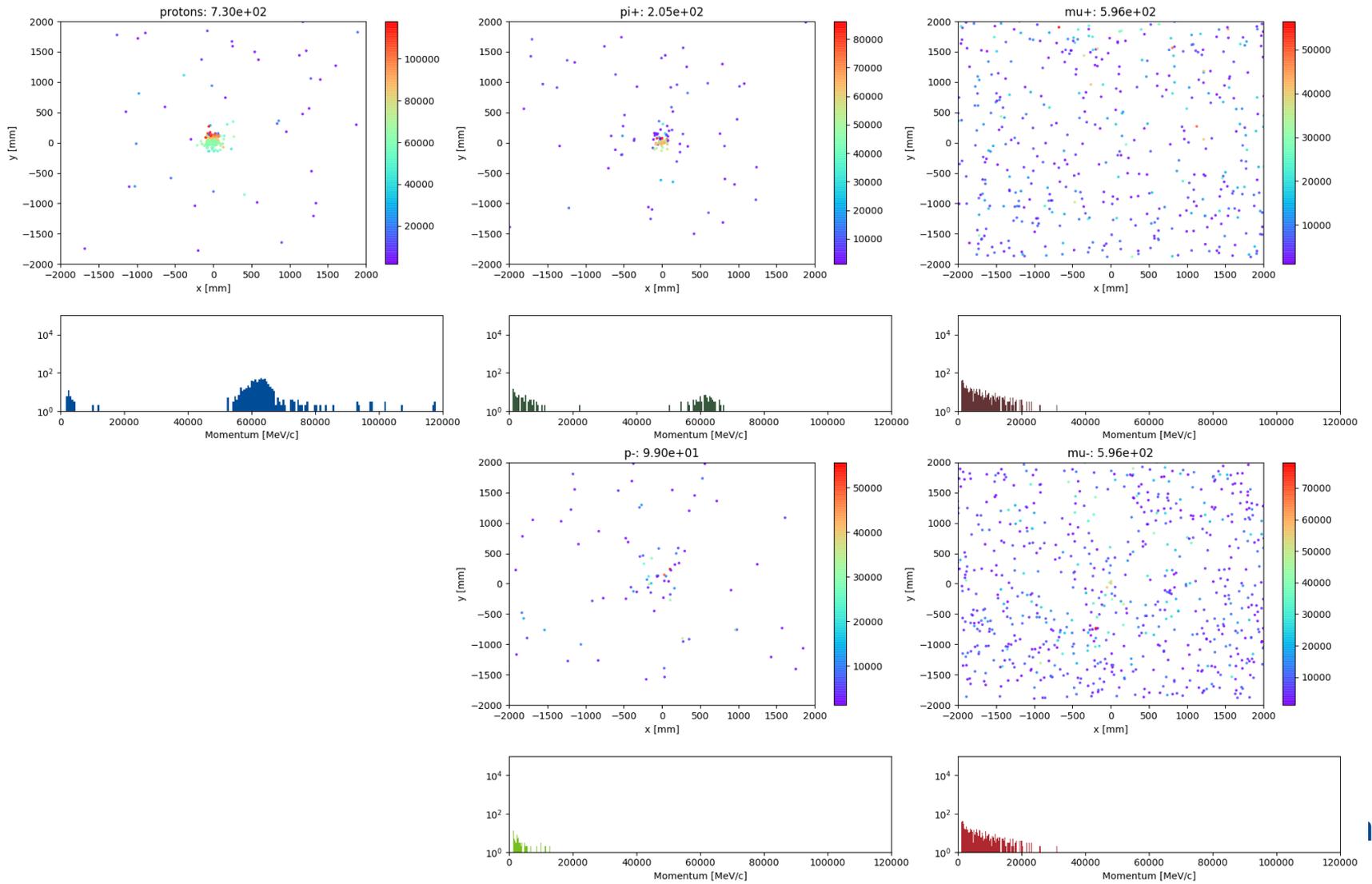


Detector 20_0



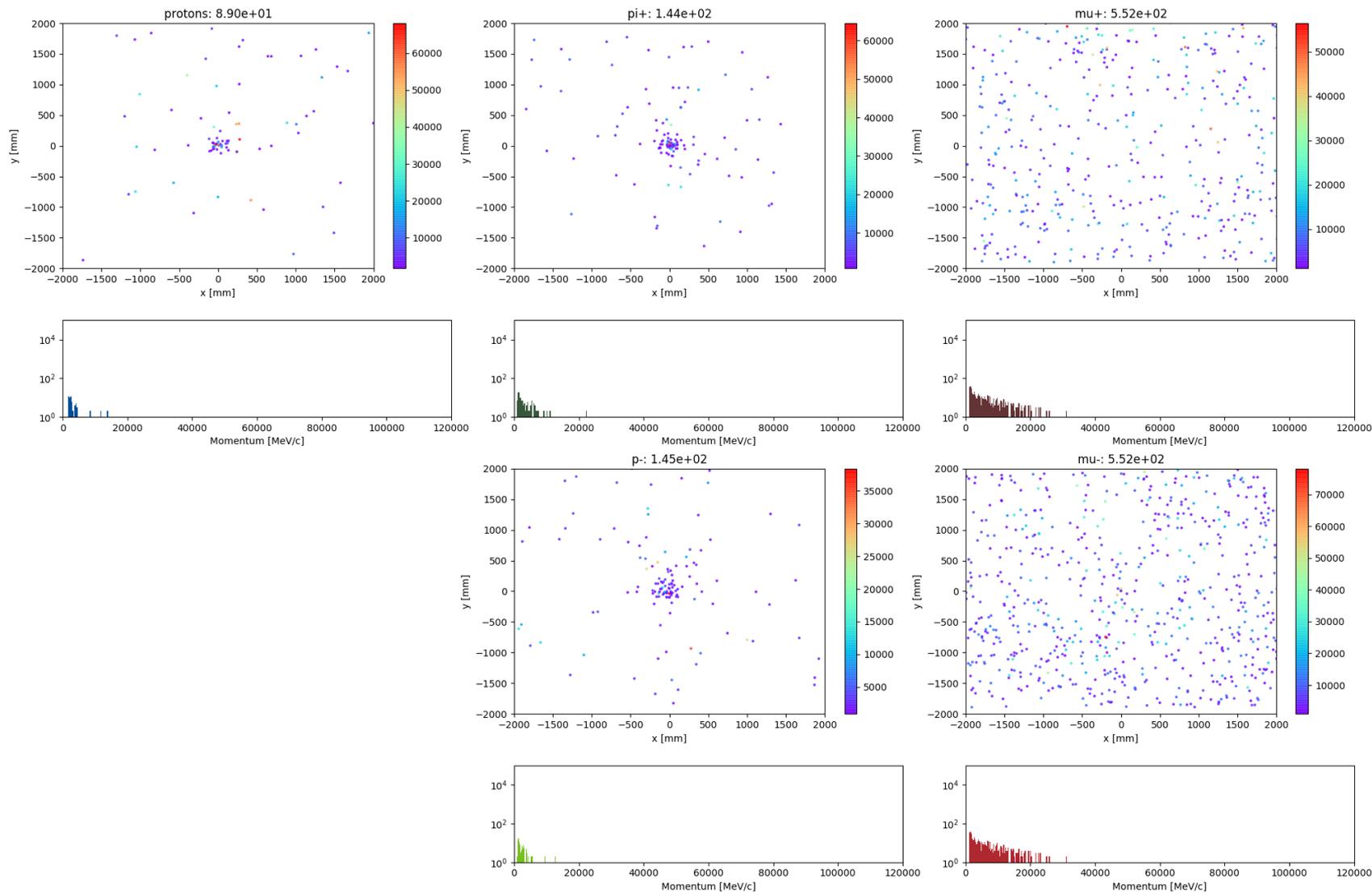


Detector 21_0



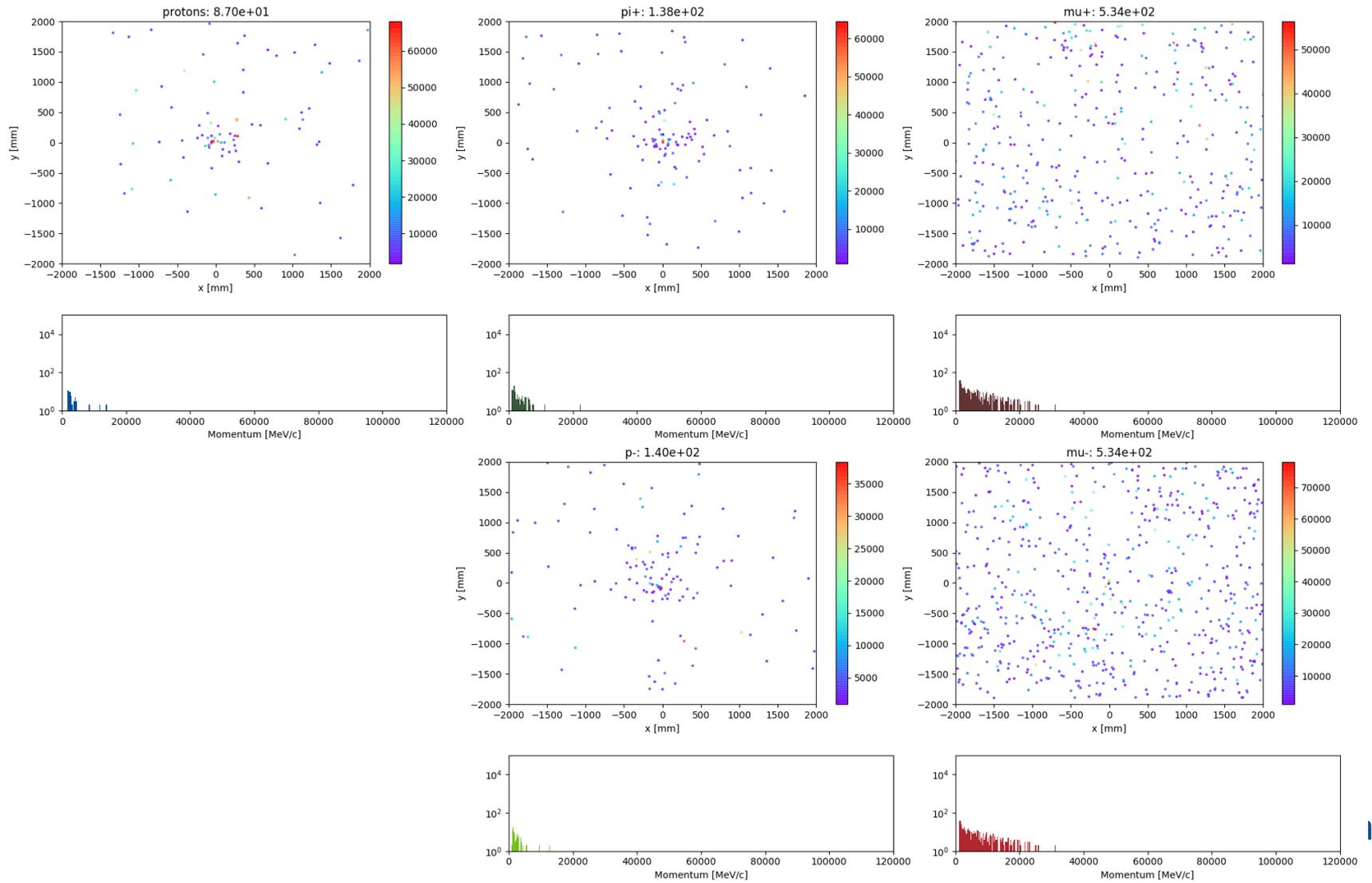


Detector 22_0



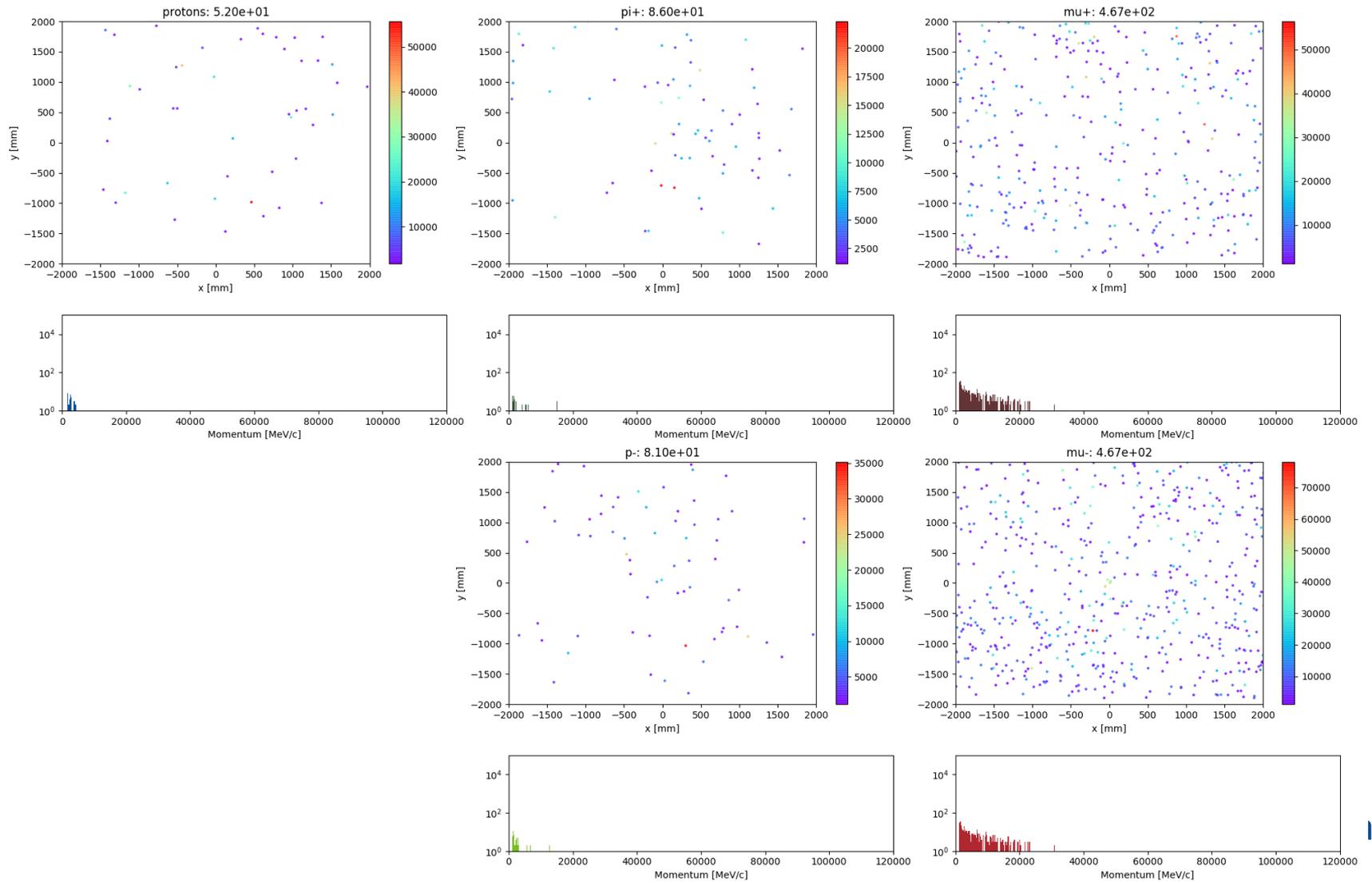


Detector 23_0



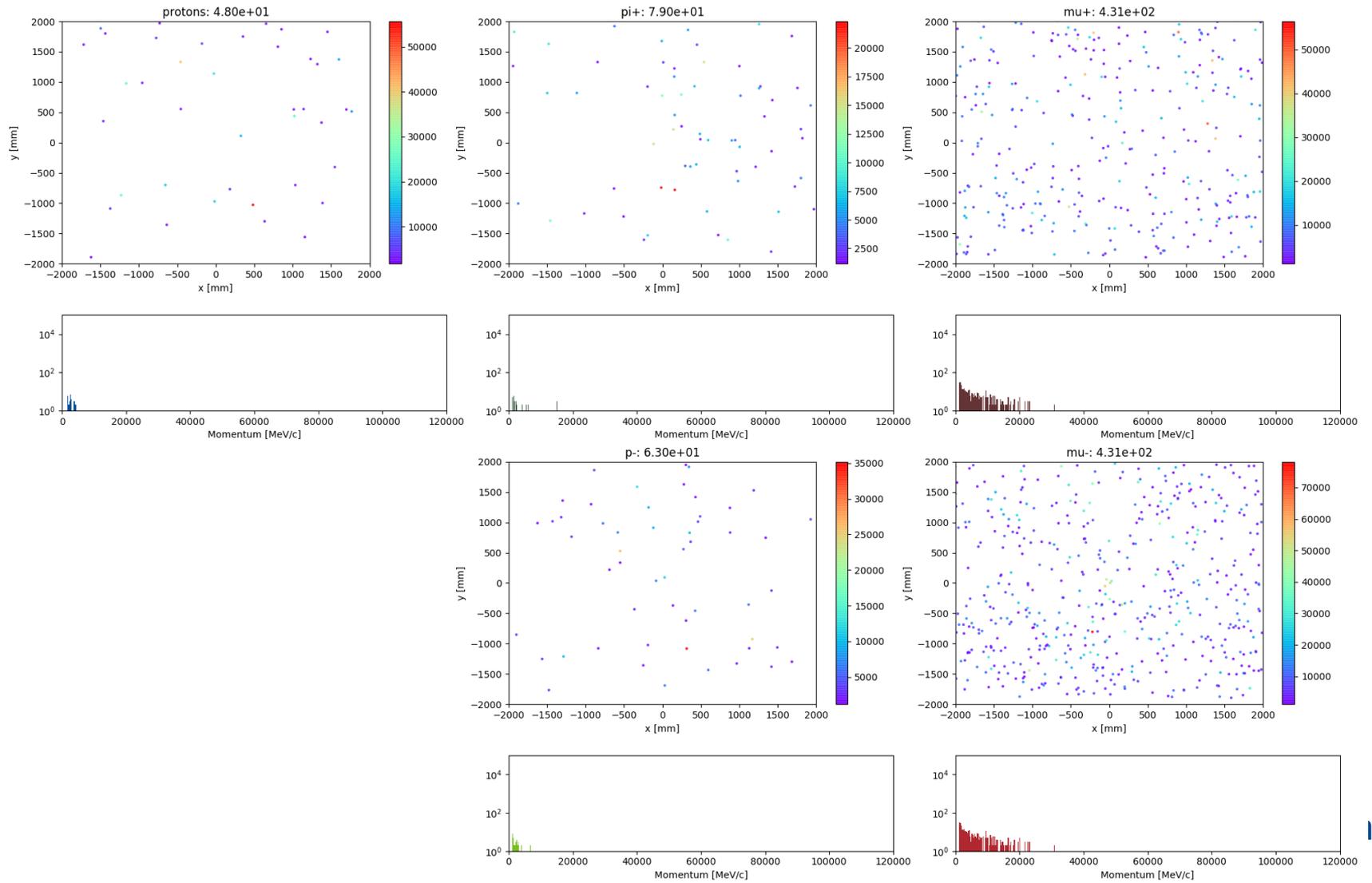


Detector 24_0





Detector 25_0





Detector 26_0

