

LOW ENERGY – LOW POWER MUON TARGET

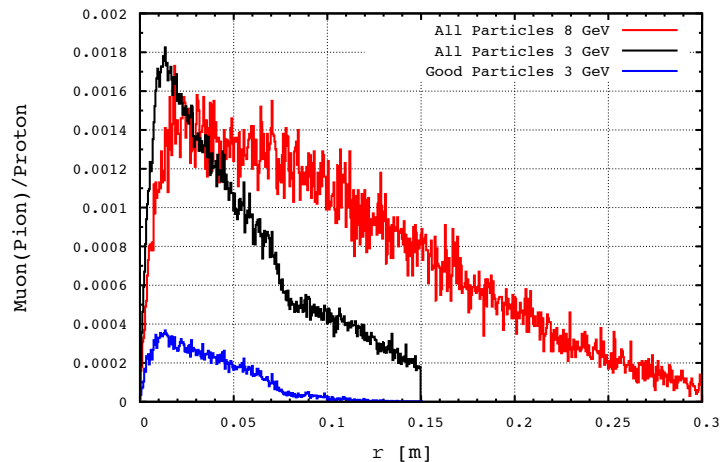
Hisham Sayed

BROOKHAVEN NATIONAL LABORATORY

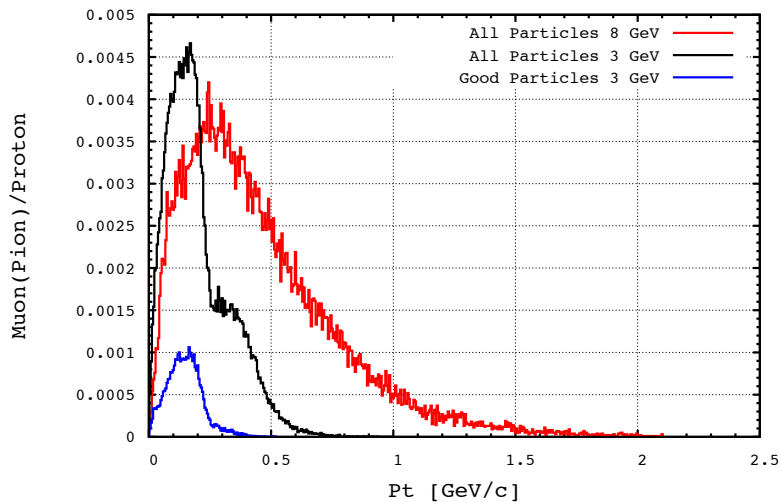
Aug 8, 2013

PARTICLE DISTRIBUTION

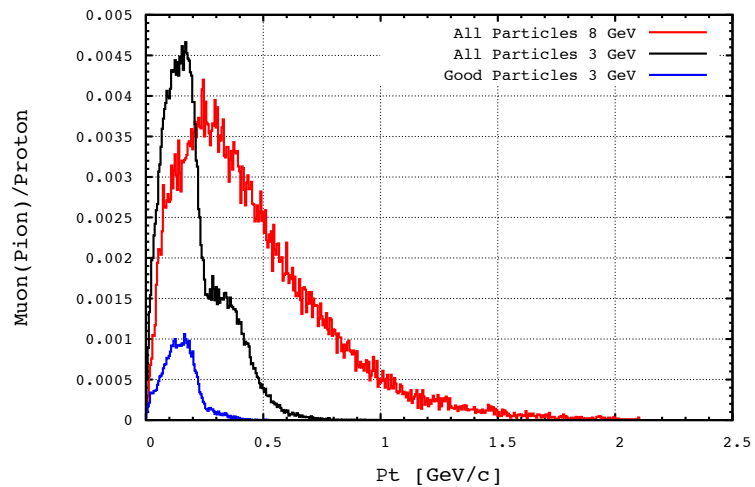
Distribution at $z = 0.0$



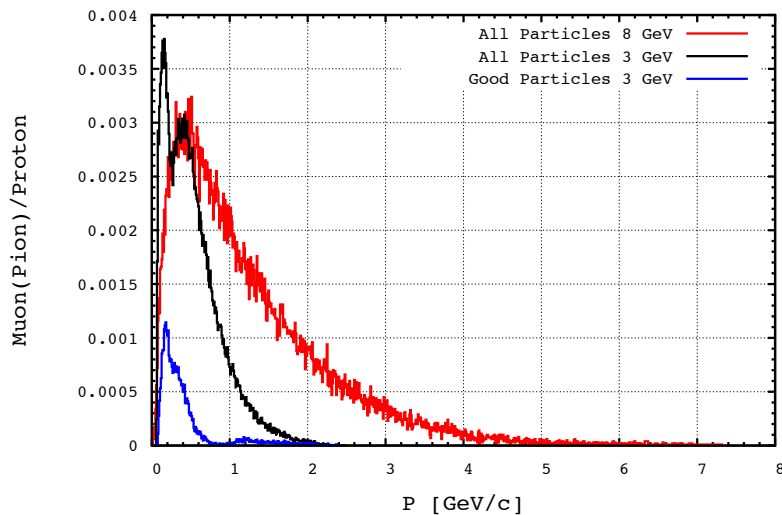
Distribution at $z = 0.0$

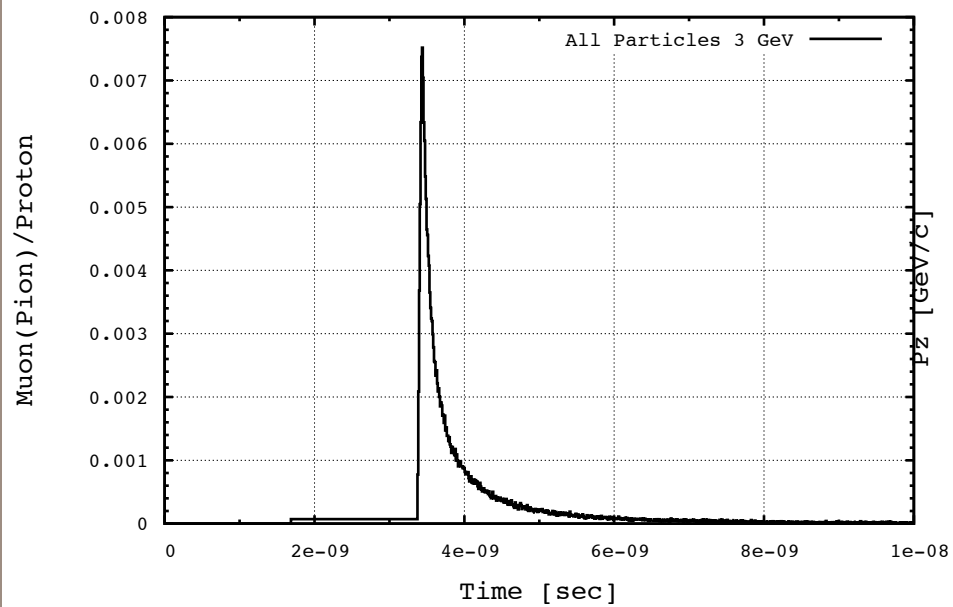
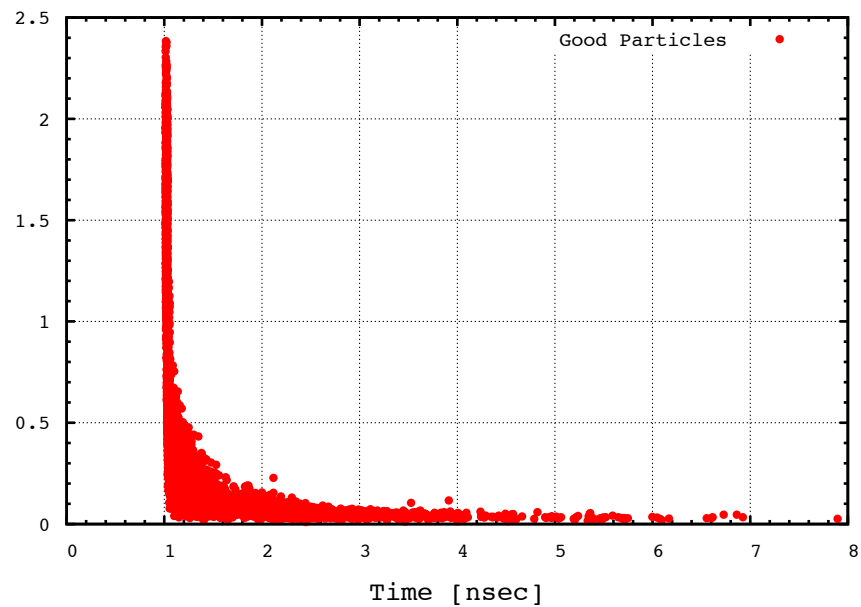


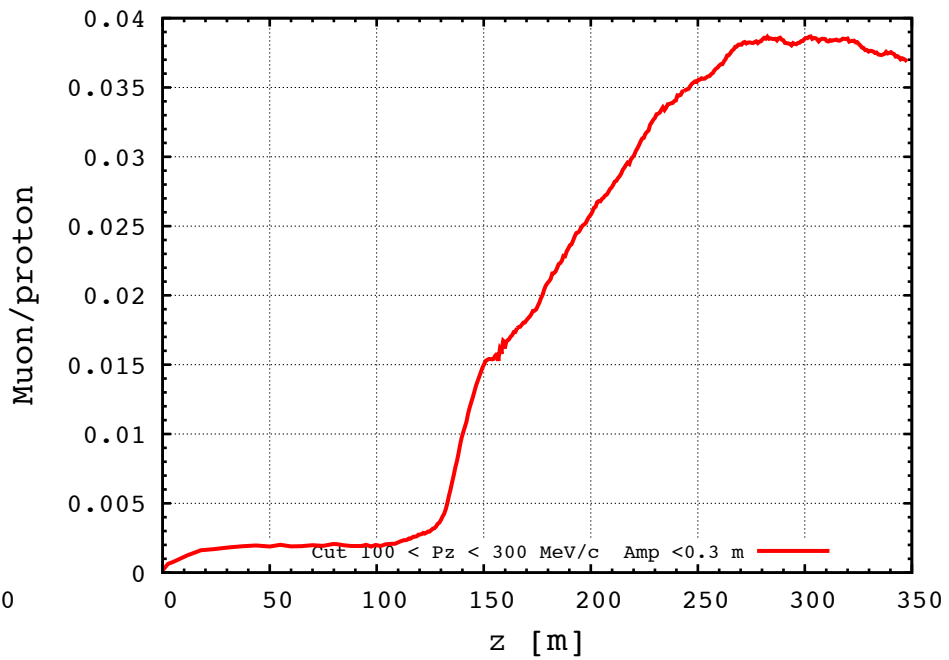
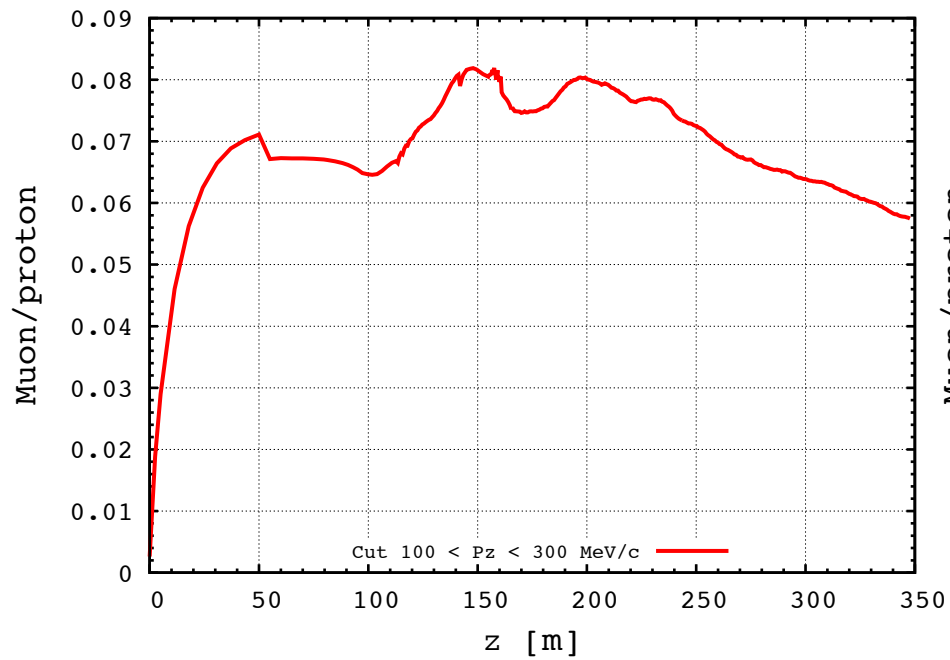
Distribution at $z = 0.0$



Distribution at $z = 0.0$

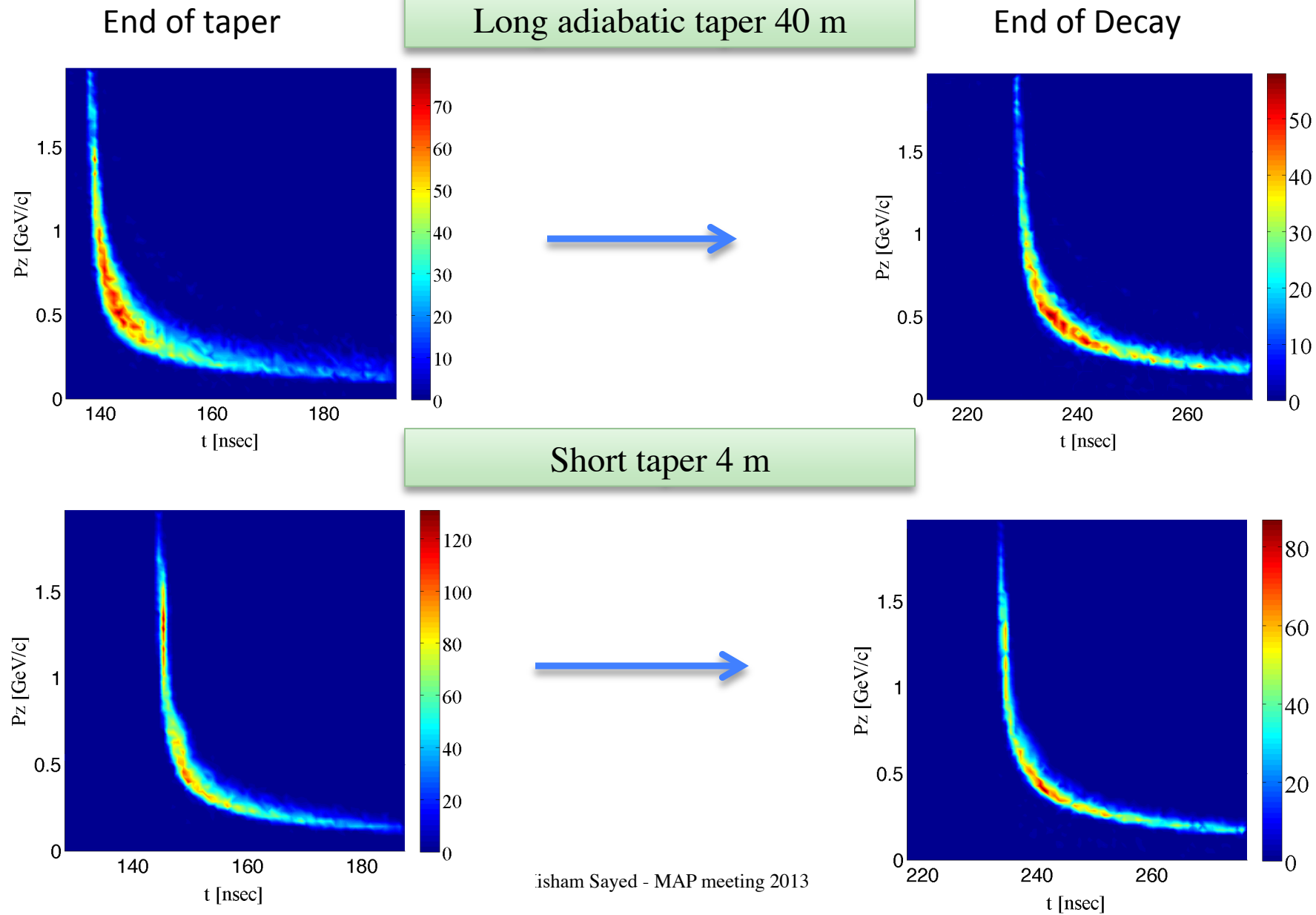


Distribution at $z = 0.0$ Distribution at $z = 0.0$ 



PHASE SPACE DEPENDENCE ON TAPER PROFILE FOR 8 GeV PROTON DRIVER

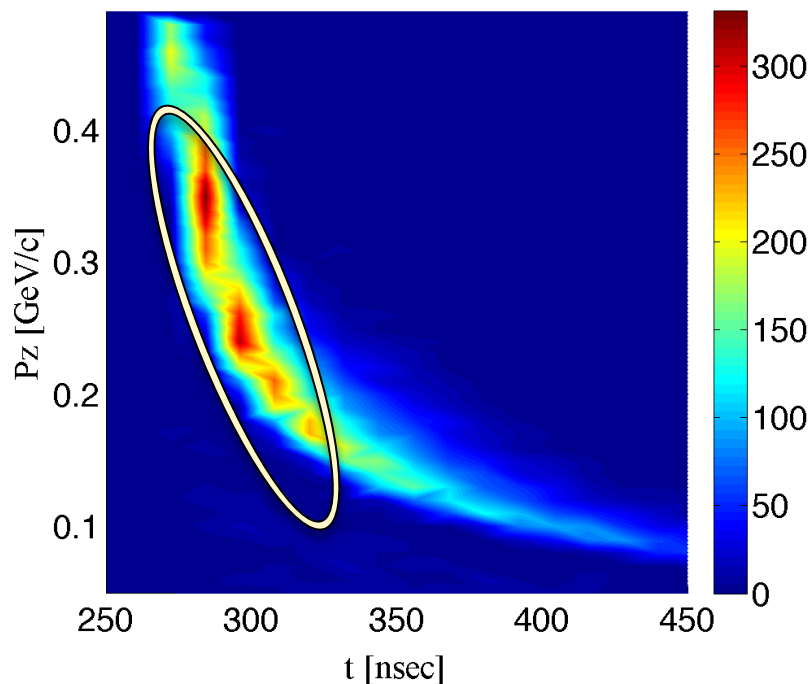
LONGITUDINAL PHASE SPACE DISTRIBUTIONS (SHORT VERSUS LONG TAPER)



PHASE SPACE DISTRIBUTIONS (SHORT VERSUS LONG TAPER)

t-Pz phase space at end of decay channel

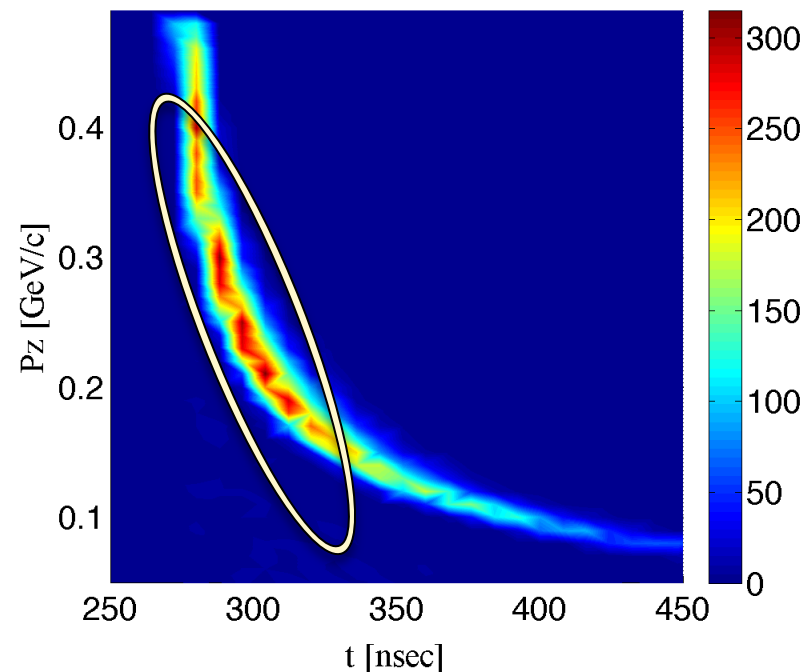
Long Taper 40 m



Long Solenoid taper:

- More particles
- More dispersed (misses the buncher acceptance windows)

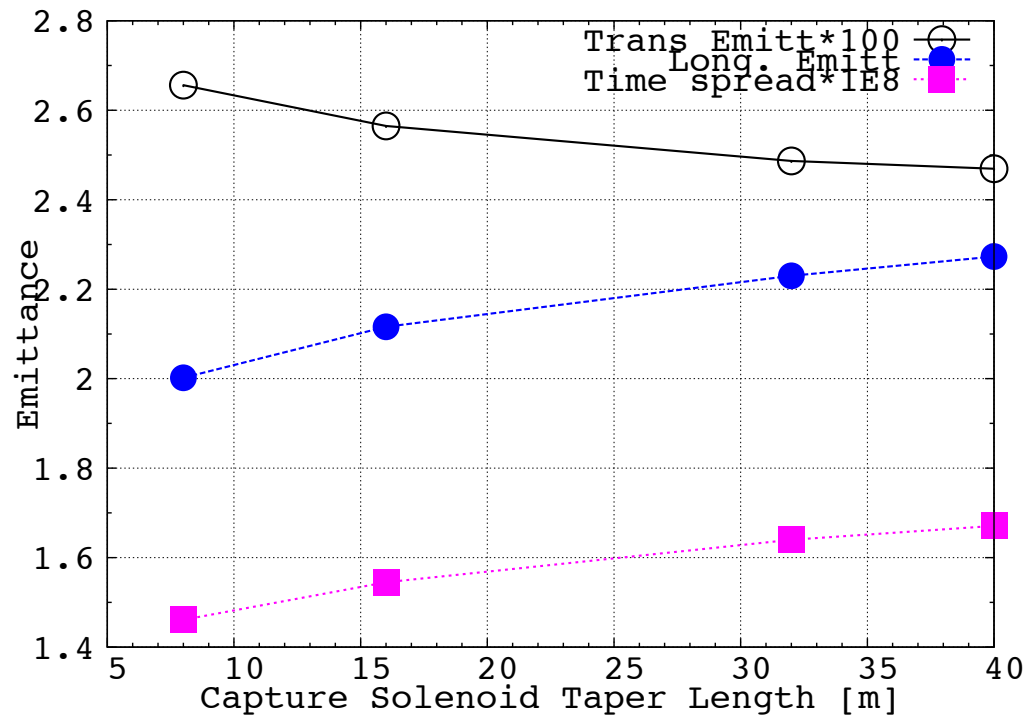
Short Taper 4 m



Short Solenoid taper:

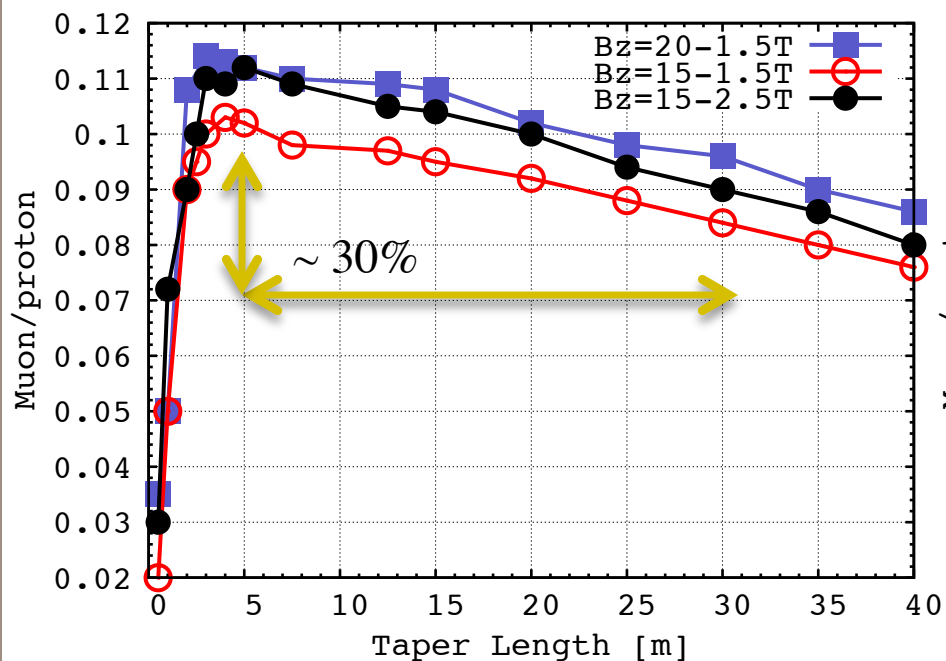
- Higher density t-Pz distribution
- Fits more particles within the acceptance of buncher/rotator

PHASE SPACE DEPENDENCE ON TAPER PROFILE

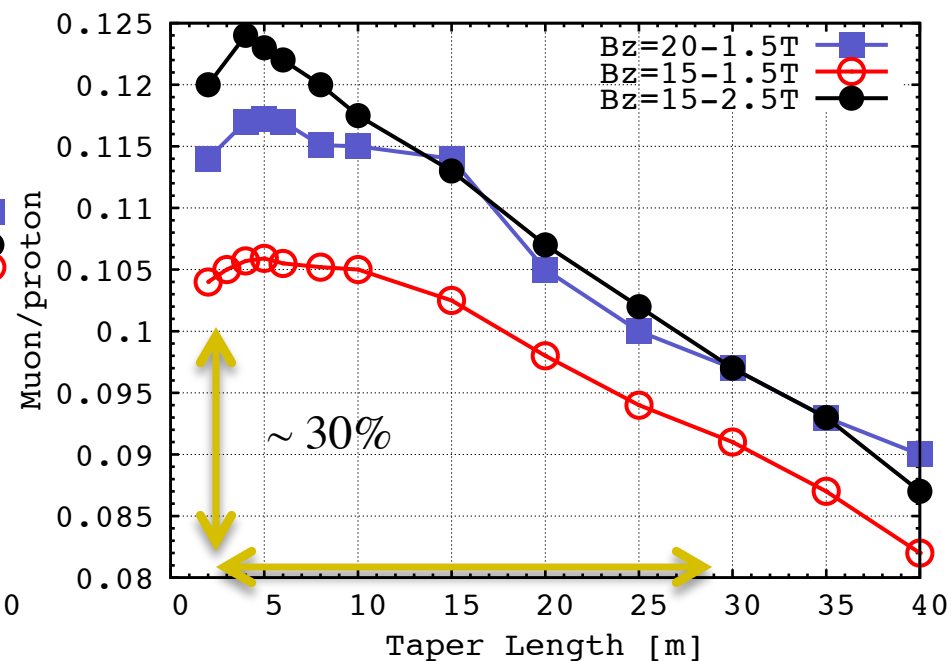


FRONT END PERFORMANCE

Using baseline cooling section
(140 cooling cell)



Using longer cooling section
(200 Cooling cell)



High statistics tracking of Muons through the front end