



2016/05 Settings

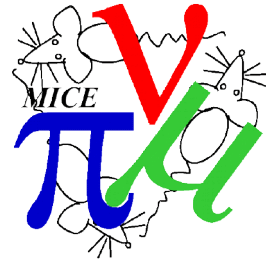


C. Rogers,
ISIS Intense Beams Group
Rutherford Appleton Laboratory



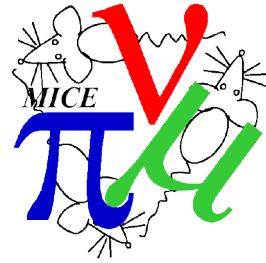
- ISIS User run 2016/05
 - 14th February to 31st March
 - Lithium Hydride absorber
 - Flip mode
 - M2D will not be powered initially
- Plan to run
 - Beta function scan at 140 MeV/c (3 settings)
 - Optics performance best at 140 MeV/c
 - But TKD performance is a concern
 - Momentum scan
 - Nb: some optics settings provided by Ao, with thanks

Parameter space plots

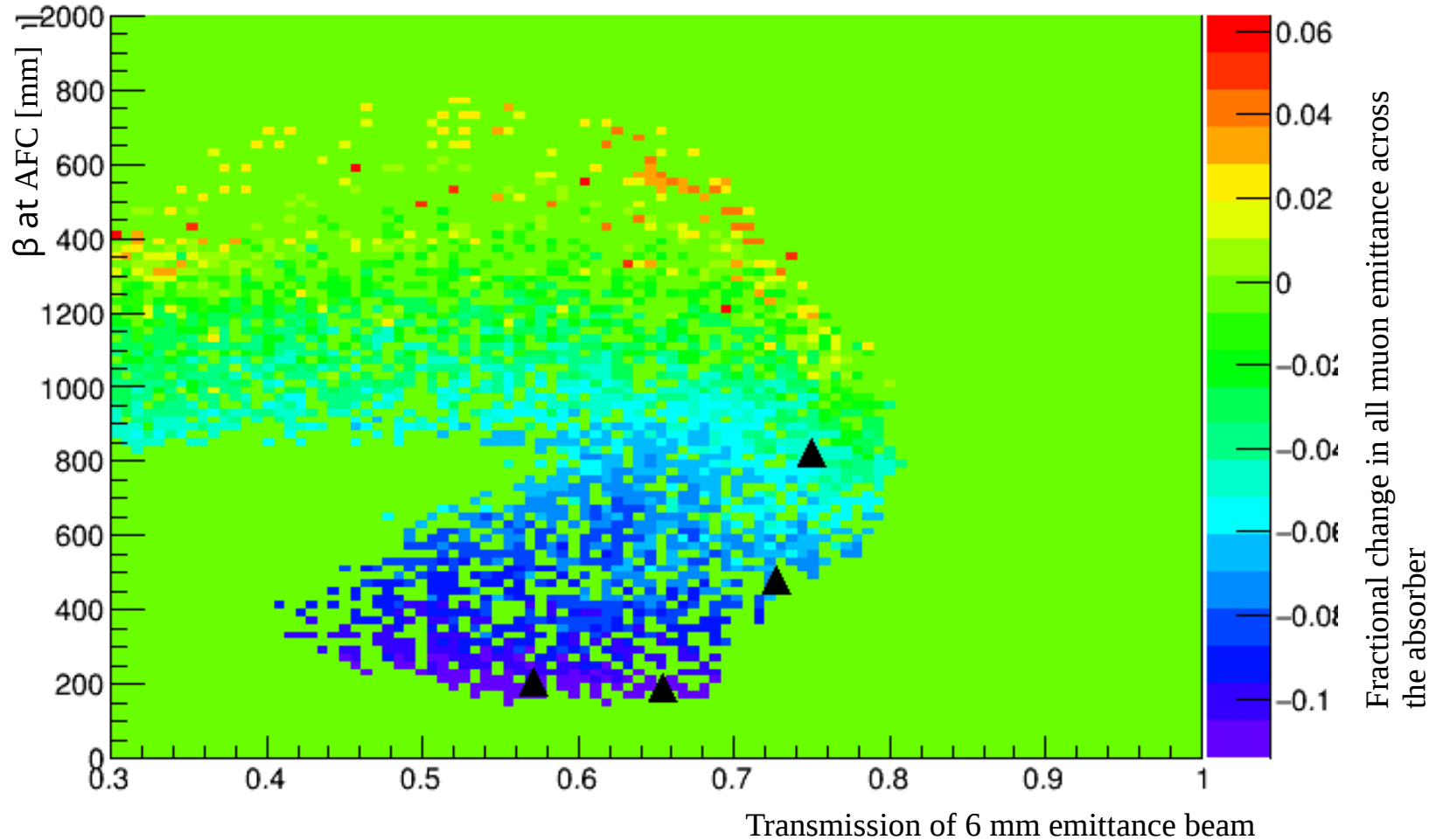


- Using Rogers simplified Step IV geometry
 - Track many 1k muon samples, each with a different current set
 - 6 mm muon beam, assume initially matched
 - Three sets at 140 , 200, 240 MeV/c
 - Flip mode
- Plot resultant parameter space – transmission vs beta at AFC
 - Beta AFC is a pretty good predictor of emittance reduction at AFC

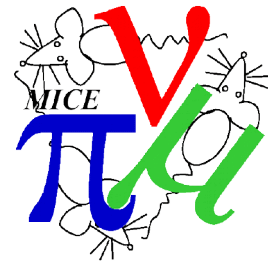
140 MeV/c Parameter Space



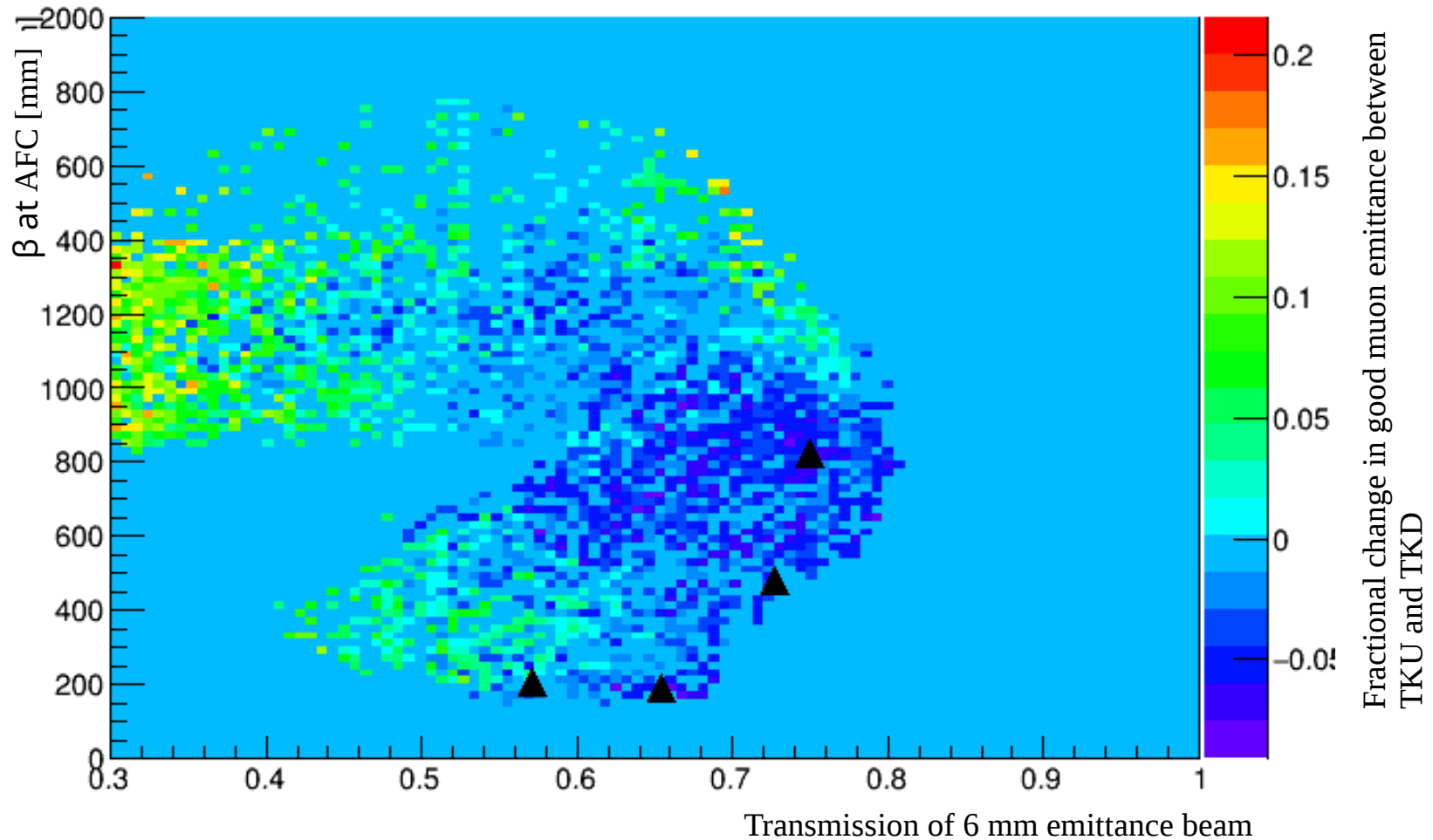
fractional_emittance_change_absorber ... P = 140 MeV/c



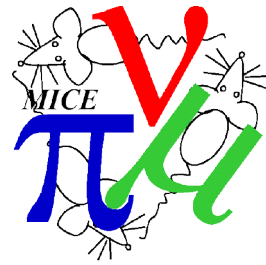
140 MeV/c Parameter Space



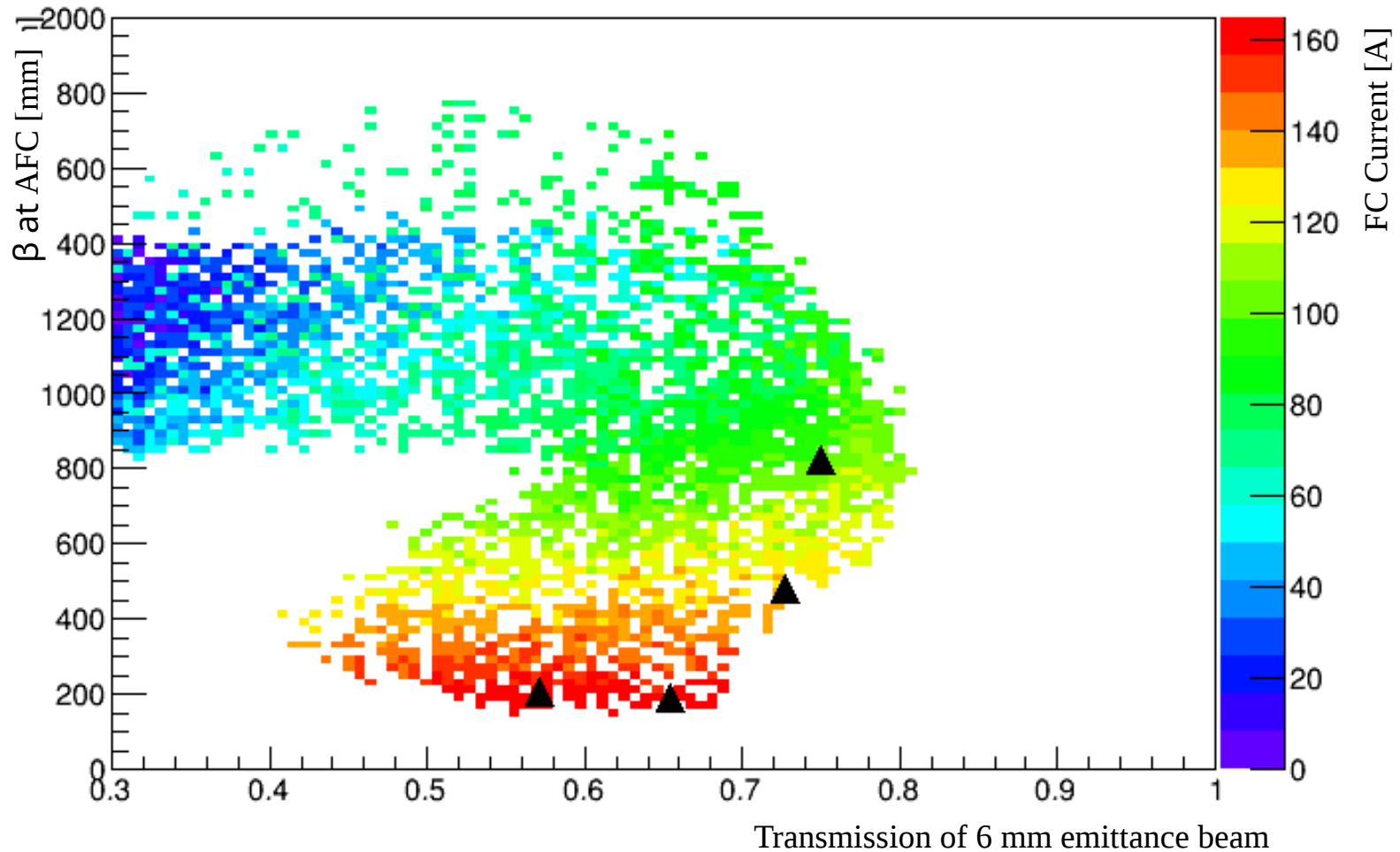
fractional_emittance_change_tracker ... P = 140 MeV/c



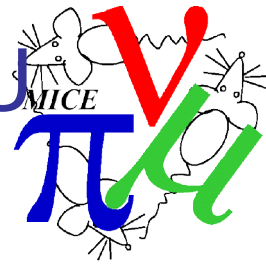
140 MeV/c Parameter Space - FC



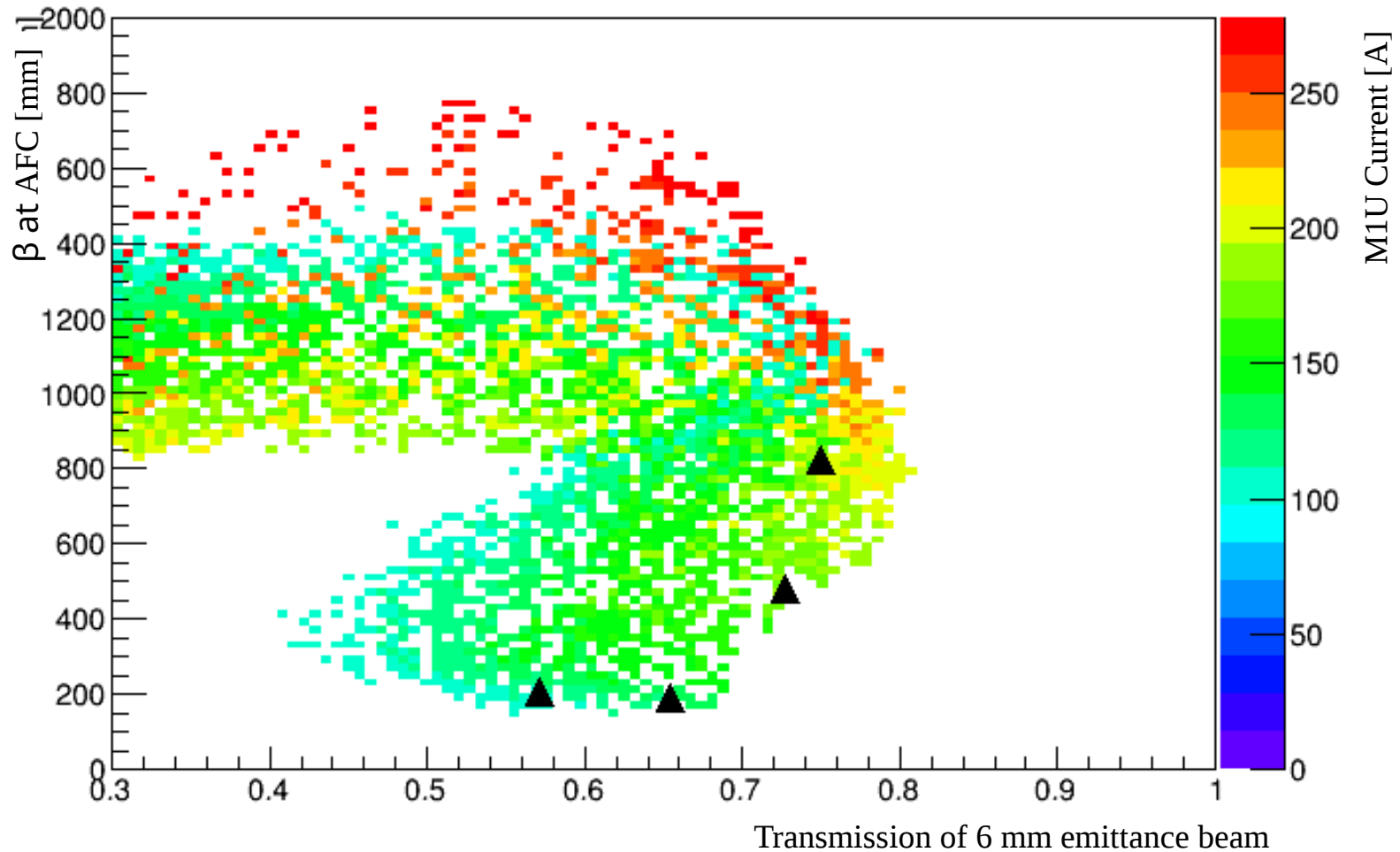
FocusCoil_US ... P = 140 MeV/c



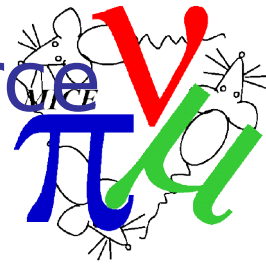
140 MeV/c Parameter Space -M1U



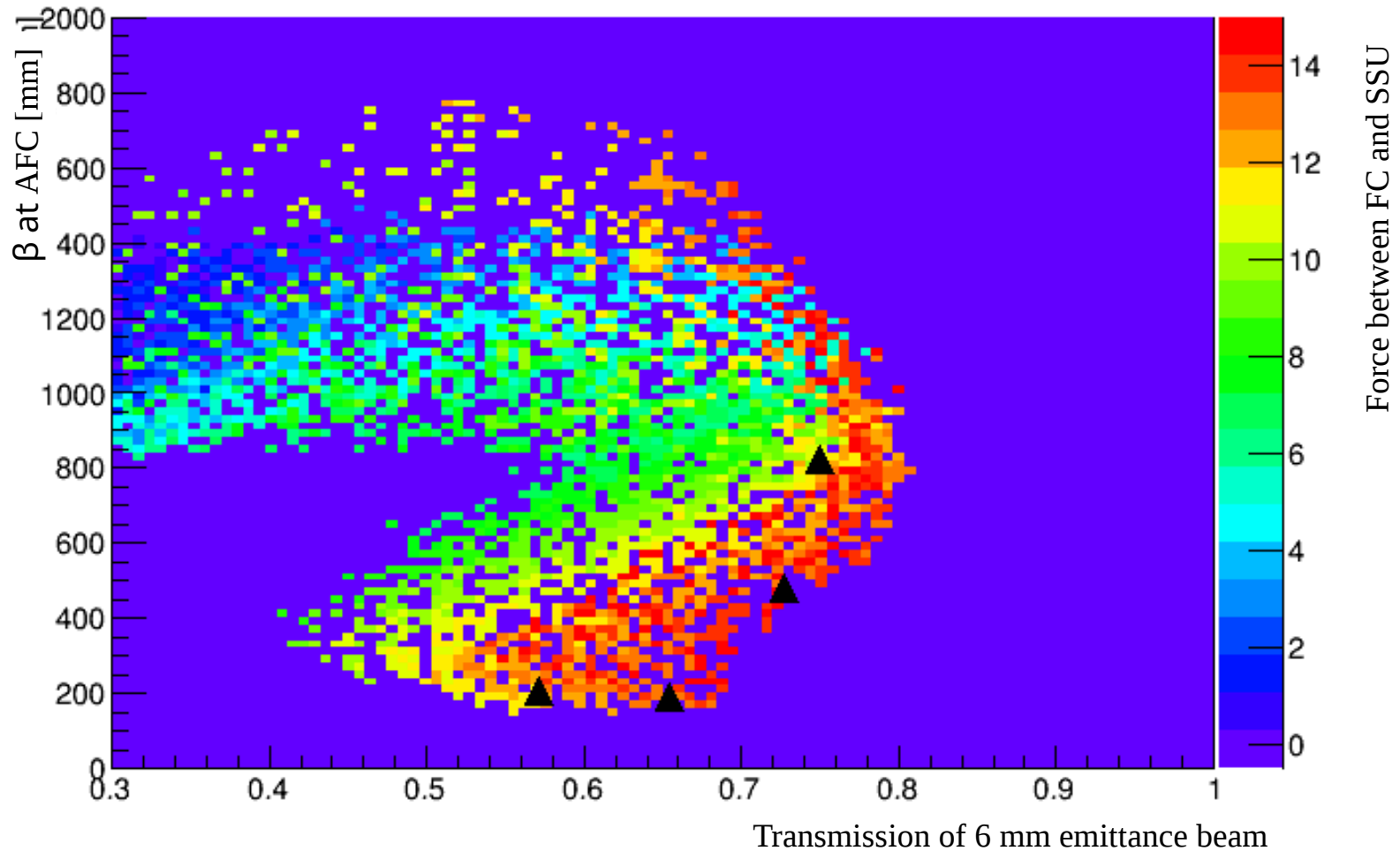
MatchCoil1_US ... P = 140 MeV/c



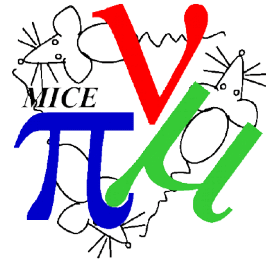
140 MeV/c Parameter Space - Force



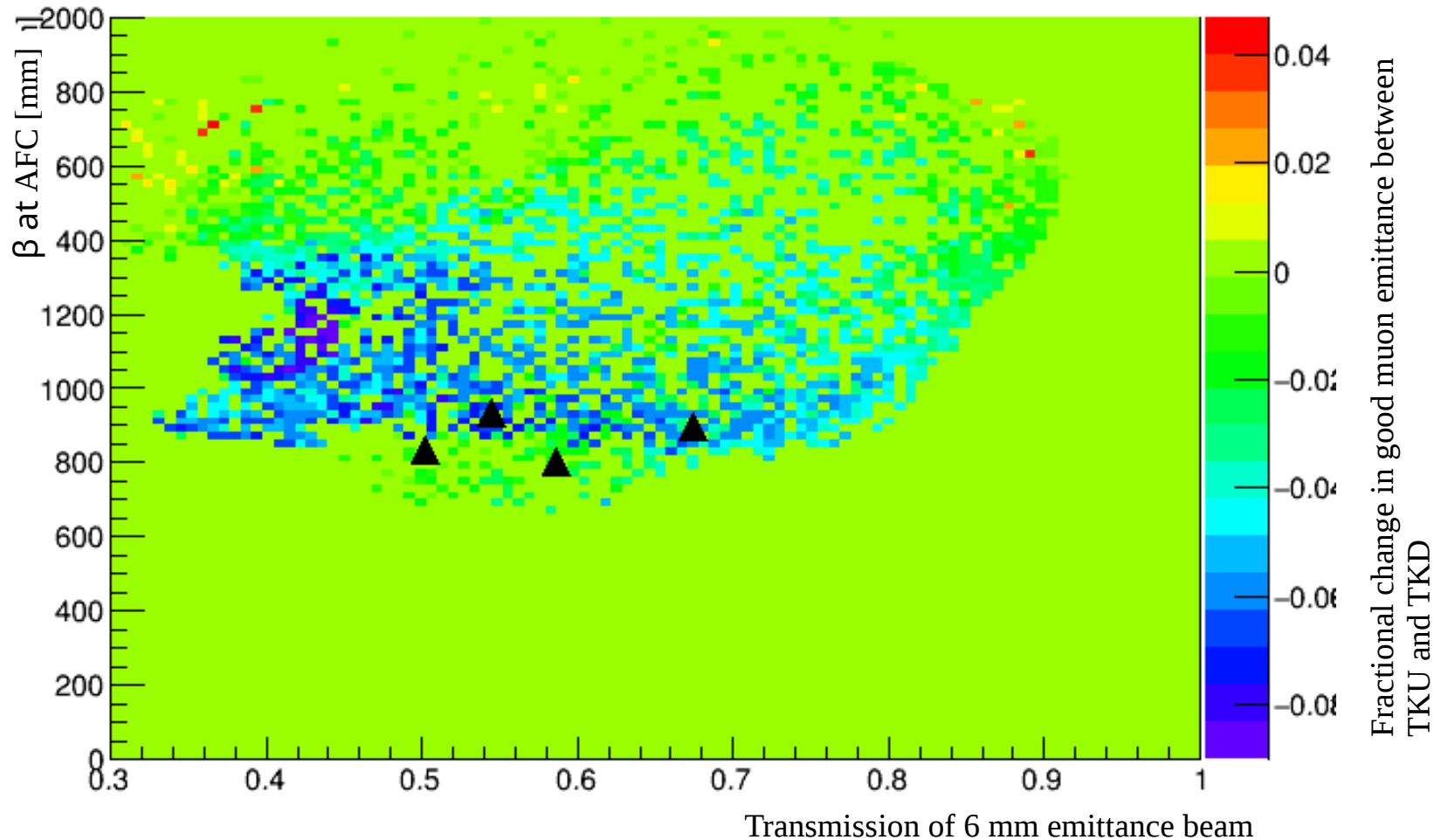
ssu_force ... P = 140 MeV/c



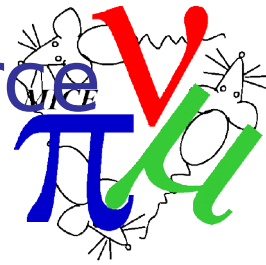
200 MeV/c Parameter Space Emittance change



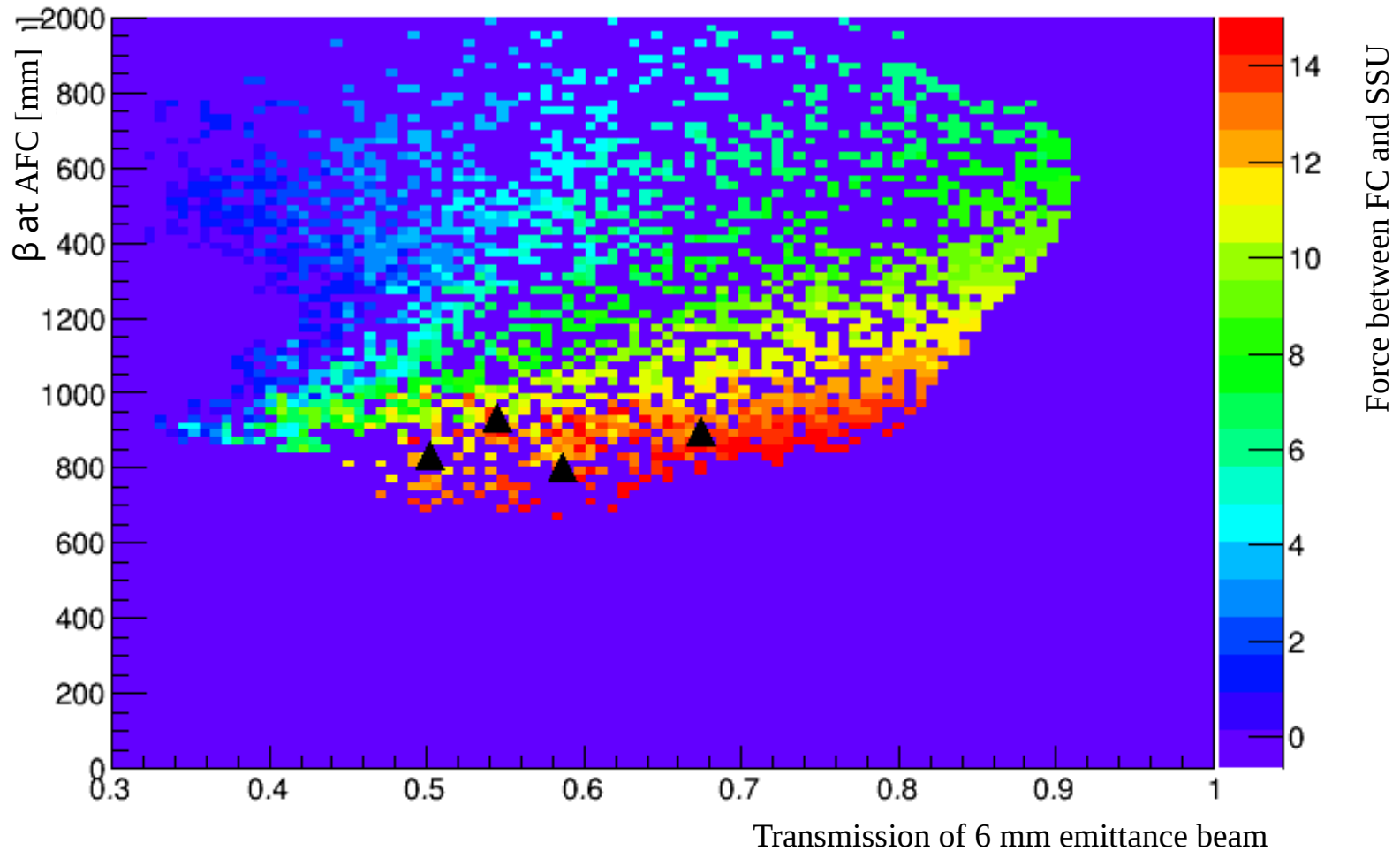
fractional_emittance_change_tracker ... P = 200 MeV/c



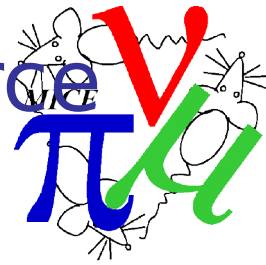
200 MeV/c Parameter Space - Force



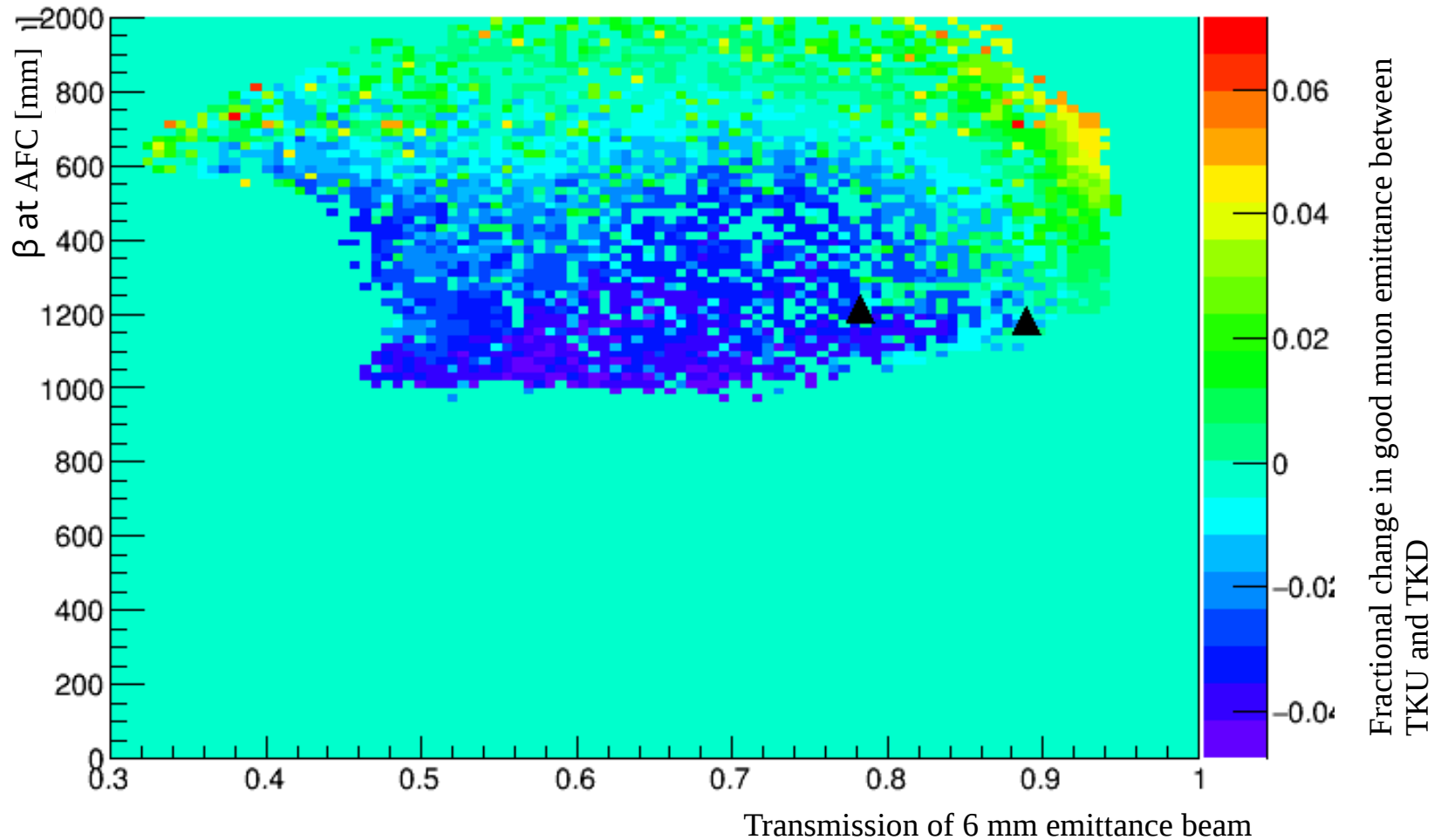
ssu_force ... P = 200 MeV/c



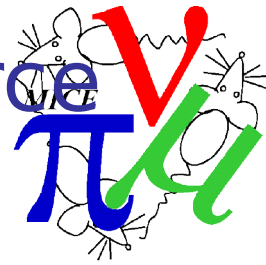
240 MeV/c Parameter Space - Force



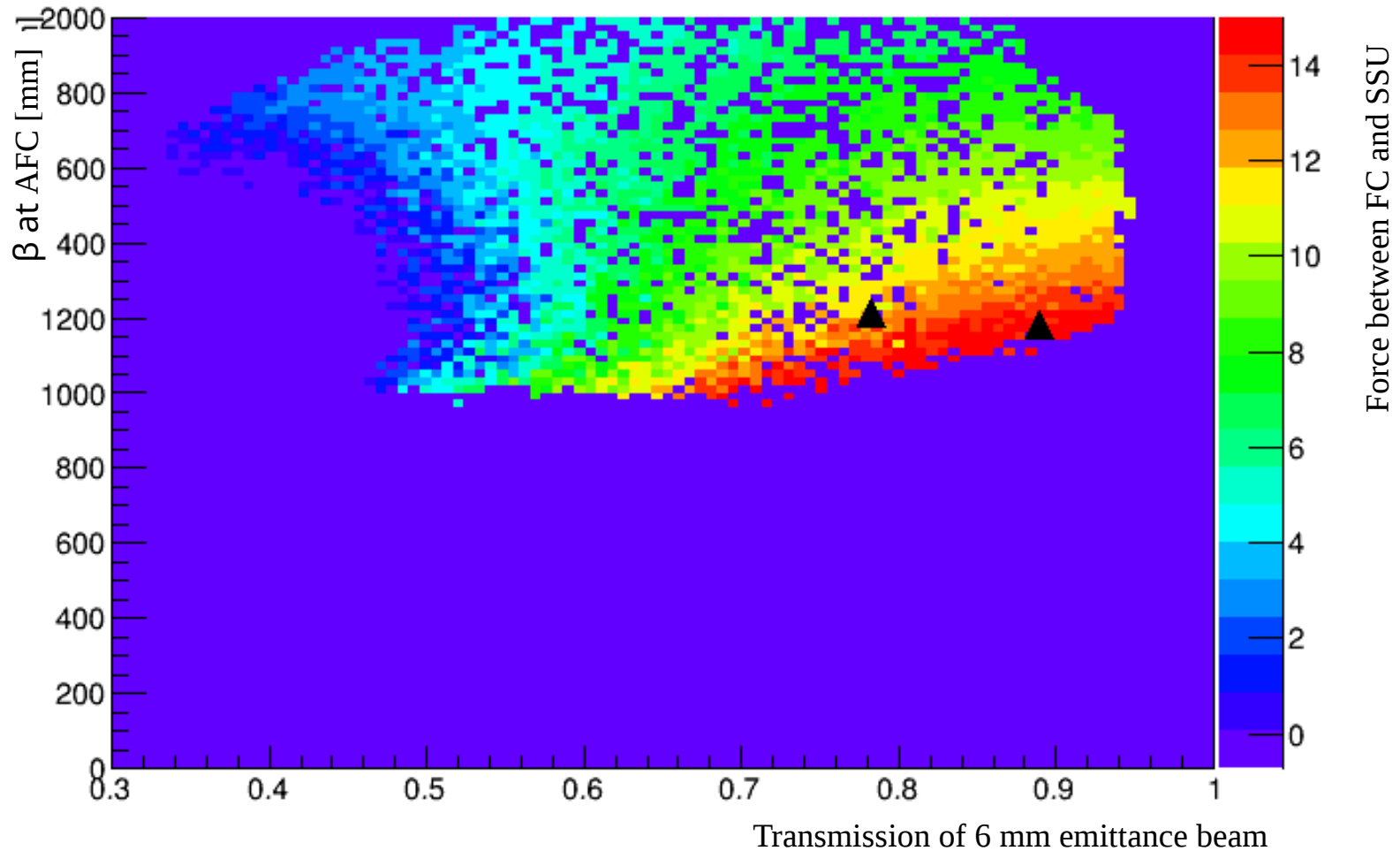
fractional_emittance_change_tracker ... P = 240 MeV/c



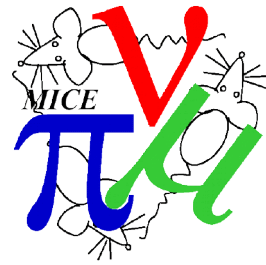
240 MeV/c Parameter Space - Force



ssu_force ... P = 240 MeV/c

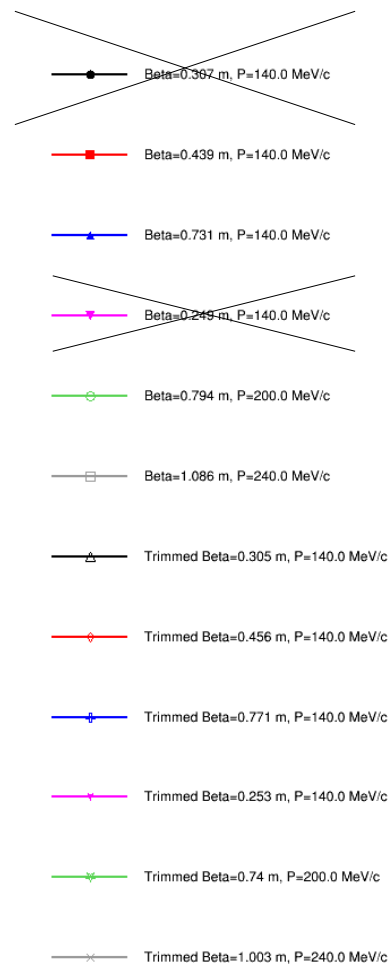
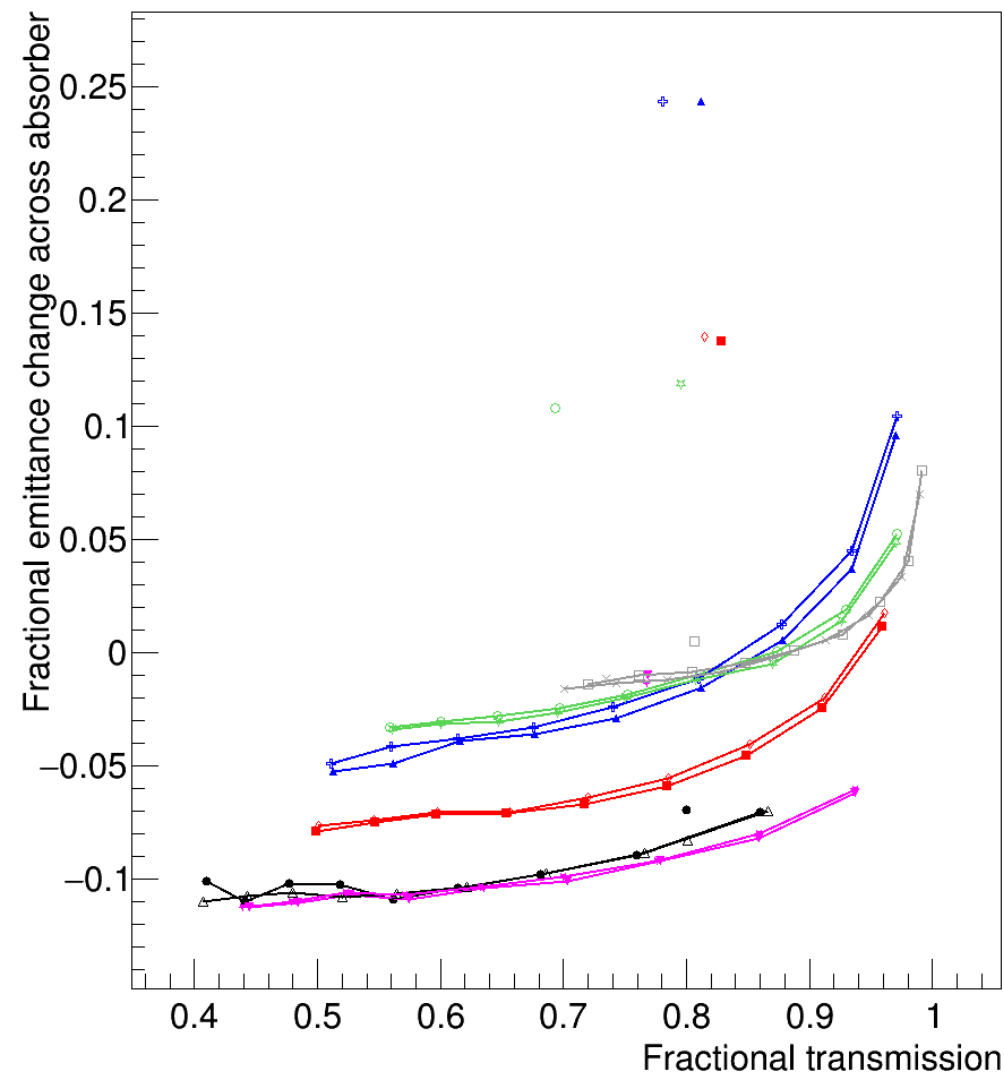
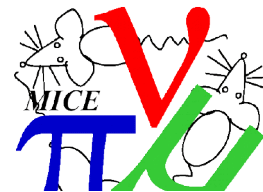


Performance plots

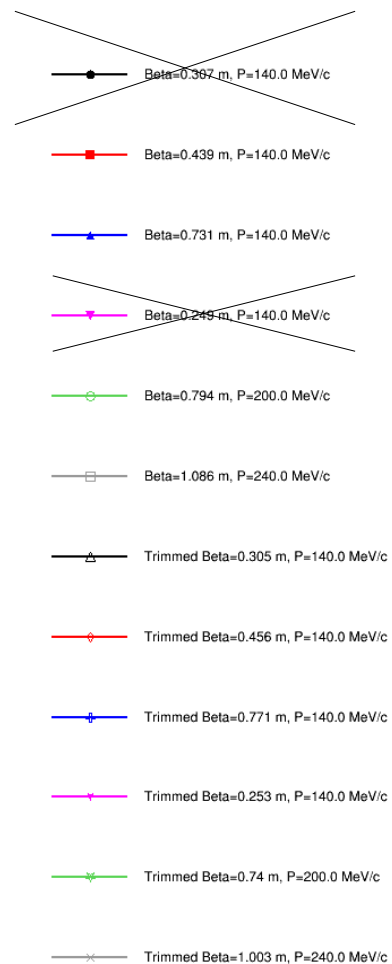
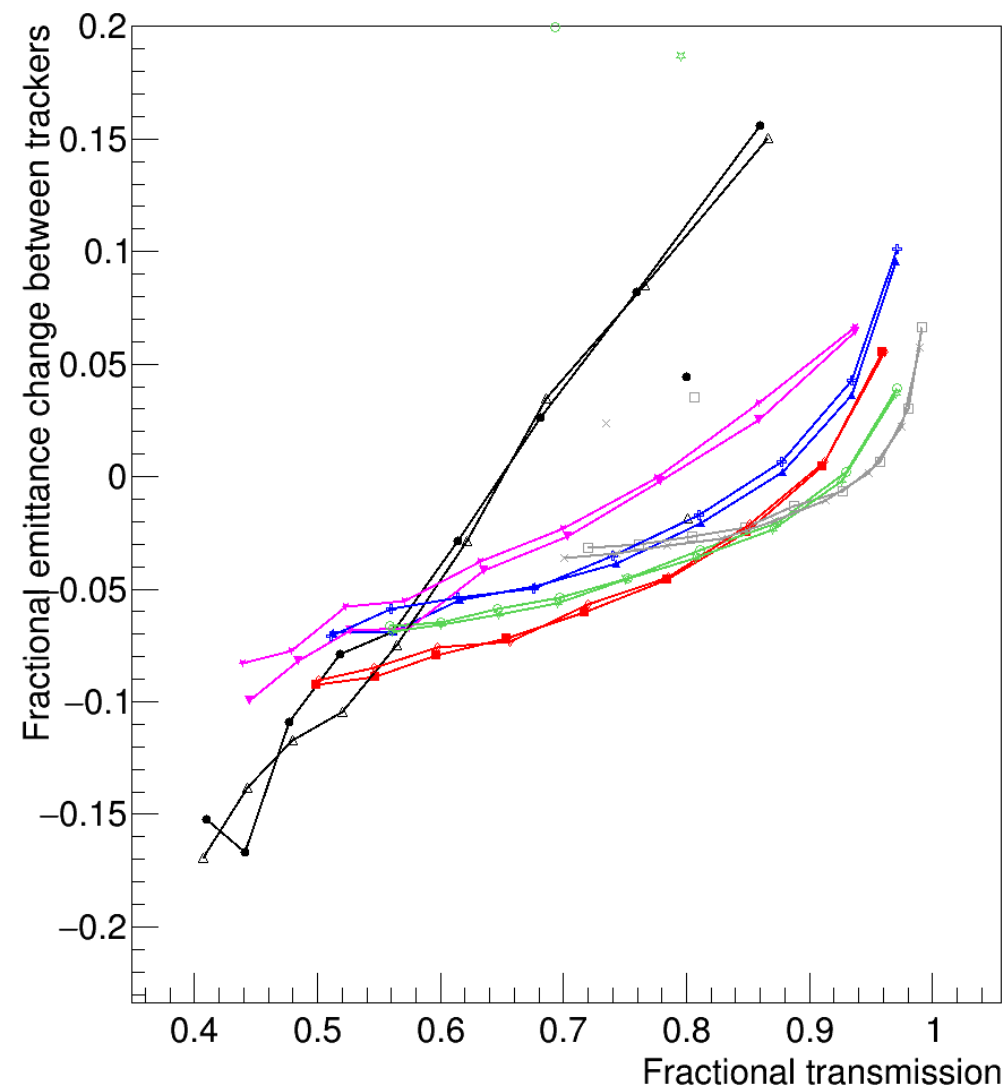
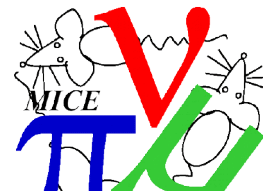


- Using Rogers simplified Step IV geometry
 - Track **50k** muon samples, with different initial conditions
 - Unmatched muon beam (Ao's beam files from October)
 - Matched beams with various emittances
- Plot resultant performance
 - Emittance reduction and transmission as a function of input emittance

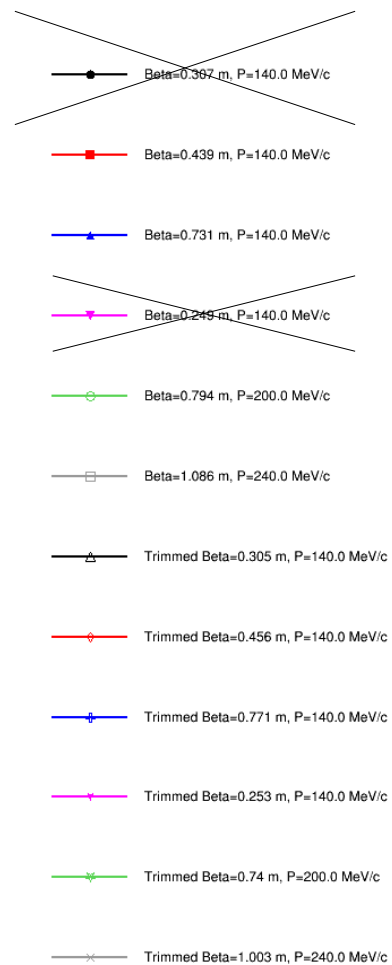
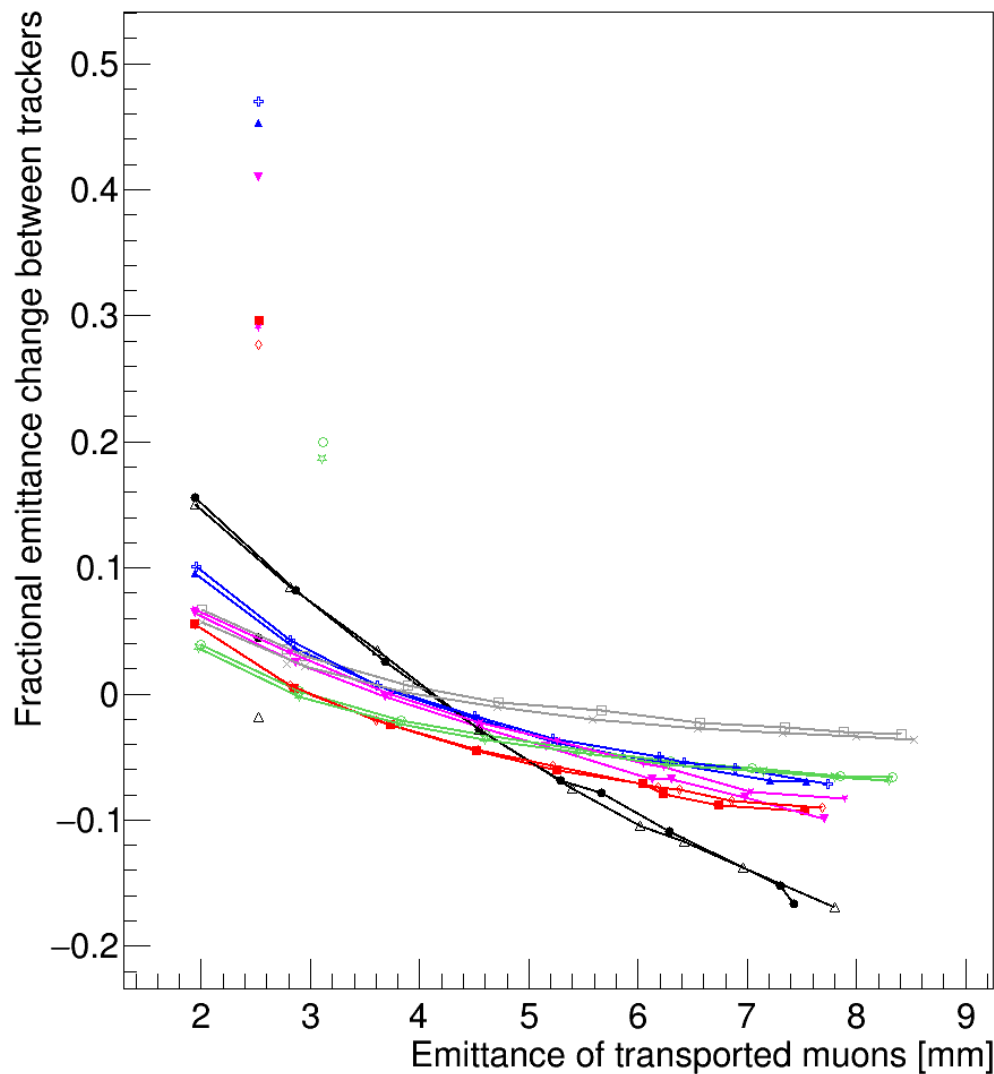
Performance plots



Performance plots



Performance plots



Performance plots

