Pion/muon yield: MARS15 code comparison (cont'd)

MARS15 code

Version of May 2009 was installed on CERN machine after NUFACT09.

Same version installed at BNL.

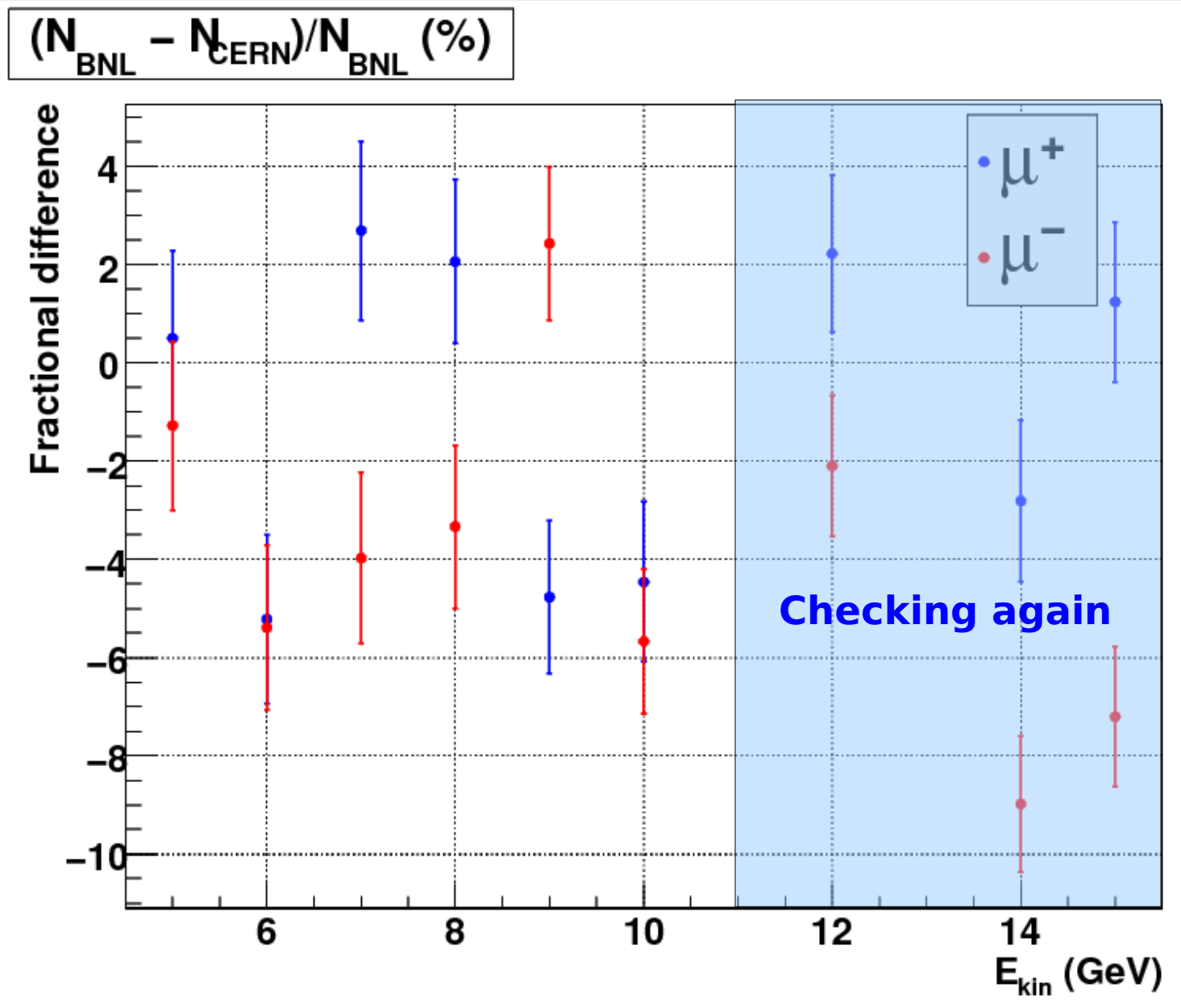
Using same field map (ST2) and input files at CERN and BNL.

Compare muon yield at z = 50 m for 40 < E_{kin} < 180 MeV.

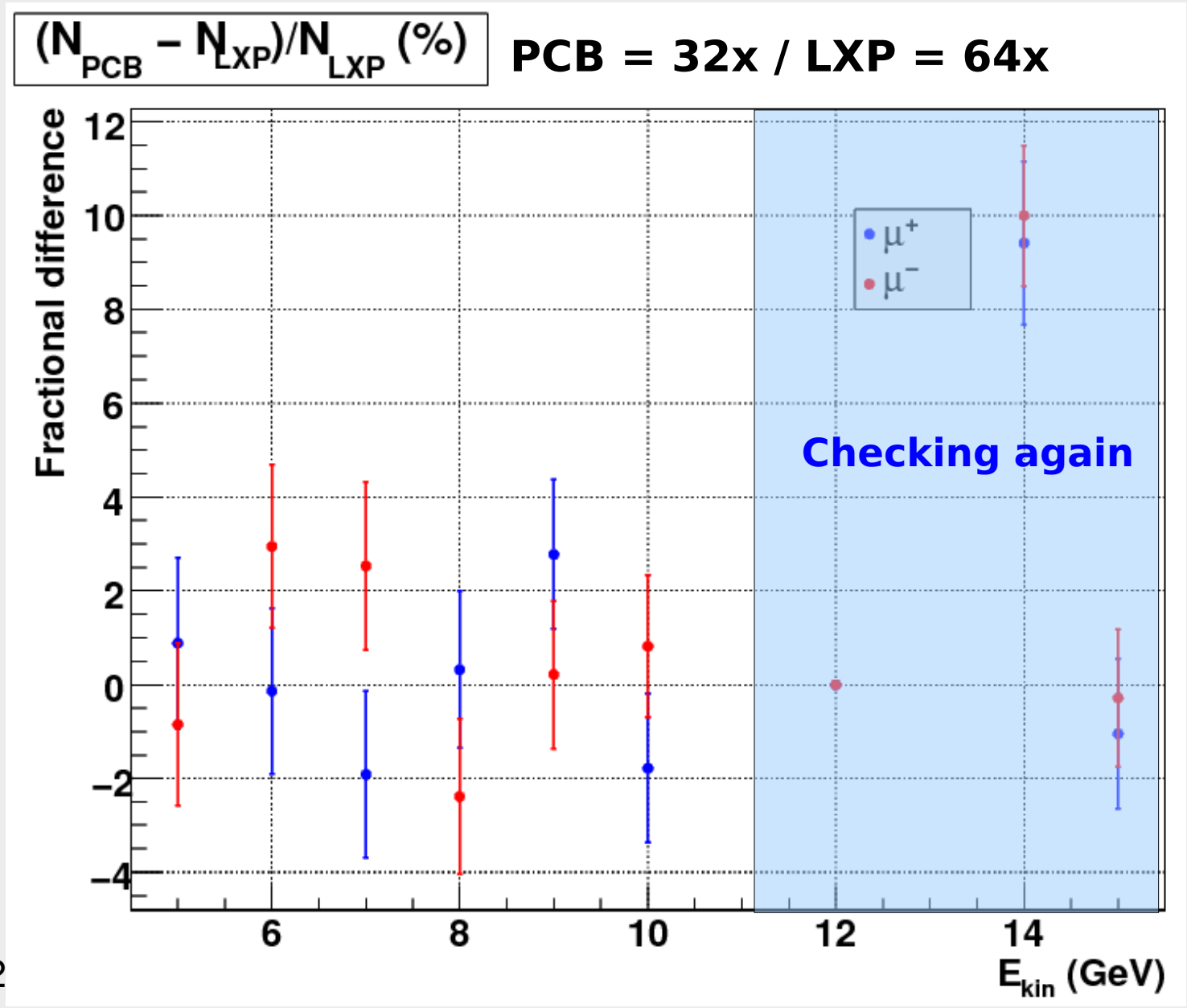
Error calculation: $$E\left(\sum w_i\right)=\sqrt{N*\sum w_i^2-\left(\sum w_i\right)^2}/(N-1)$$

$$E((N_1-N_2)/N_2)=\sqrt{E(N_1-N_2)^2/(N_1-N_2)^2+E(N_2)^2/N_2^2}$$

Comparison BNL/CERN



Comparison 32x(SLC4)/64x(SLC5)



Conclusion

Difference between 32x/64x machine (even with m32 flag):

Need to check with N. Mokhov 32/64 compatibility.

Is BNL cluster 32 or 64 bit ?

Need to understand difference between BNL & CERN.

To compare ST2/ST2a needs to run say 10+ with different starting random seeds for each configuration, look at difference in the yield distribution for different energy bins:

If the distributions overlap within RMS from run to run try with higher statistics.