Comparison with running same MARS code on different computers

G. Prior (CERN)

Three different machines

- BNL cluster

Linux SL4 (2.6.9-89.0.11.ELsmp)

Little Endian - 64x

- CERN desktop

Linux SLC4 (2.6.9-89.0.19.EL.cern)

Little Endian - 32x

- CERN cluster

Linux SLC5 (2.6.9-89.0.16.EL.cernsmp)

Little Endian – 64x

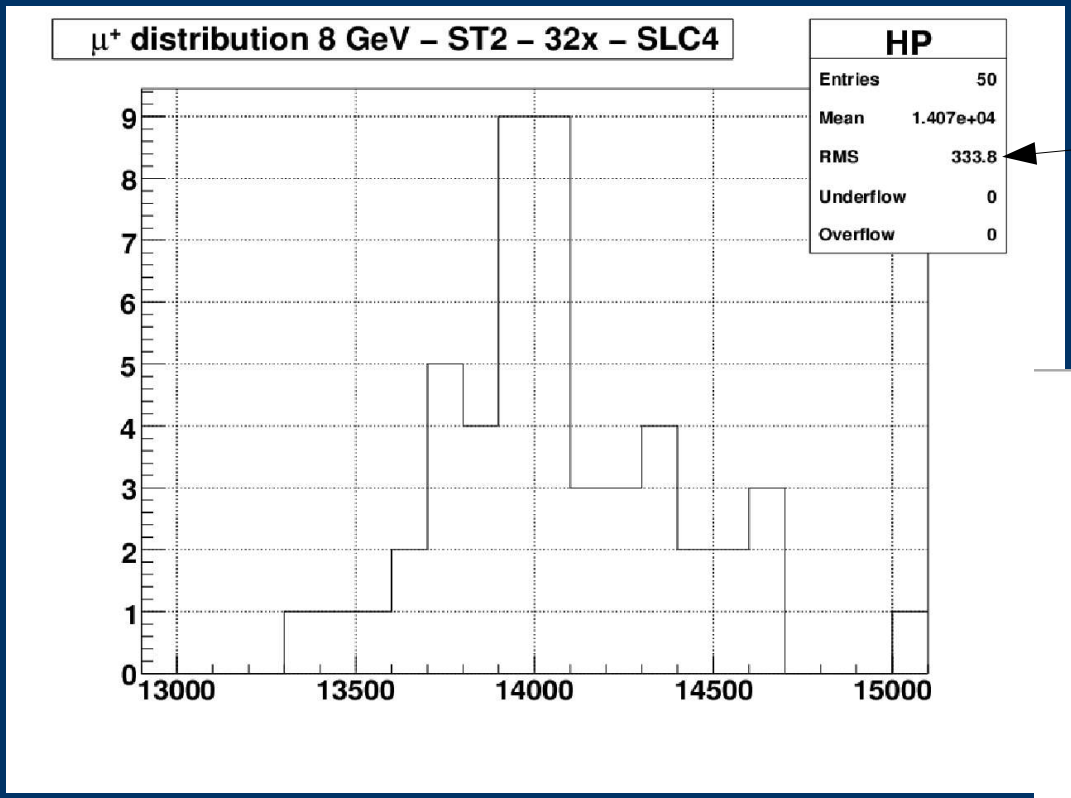
≠ in μ yield at 50 m between CERN 32x & BNL 64x up to 10%

≠ in μ yield at 50 m between CERN 64x & BNL 64x up to 7%

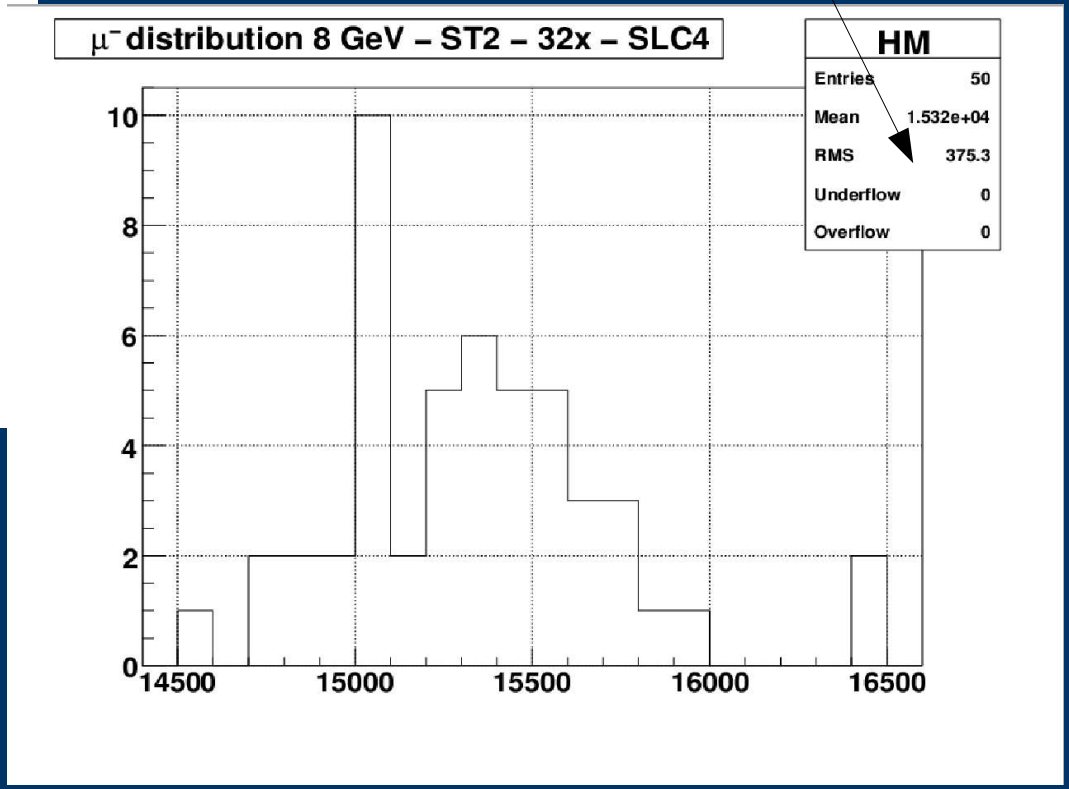
-> ask MARS developers about the origin of these discrepancies.

Muon yield distribution

50 runs with different starting seeds on CERN 32x computer:



Standard deviation
~2% of the yield.



!! What ROOT calls RMS is a standard deviation:

$$\sqrt{\sum (x_i - x_{mean})^2 / N}$$

TO DO

- What about the spread of distribution for CERN 64x and BNL 32x architectures ?

  -> do we really want/need to check ?

- Check spread for other energy settings of the beam.

  -> is it dependent on the beam energy ?

- Run the same test with ST2a field configuration.

  -> do we have an increased yield for one configuration ?