

KaonLT Analysis Update
(HMS Cal & Cer Efficiency)
(HeeP Singles Study)

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Preview

- Looking at the HMS calorimeter and Cherenkov. For a wide range of Heep Singles settings.
- Using a clean sample of electrons
- Using Cherenkov to get clean sample for calorimeter and vice versa.

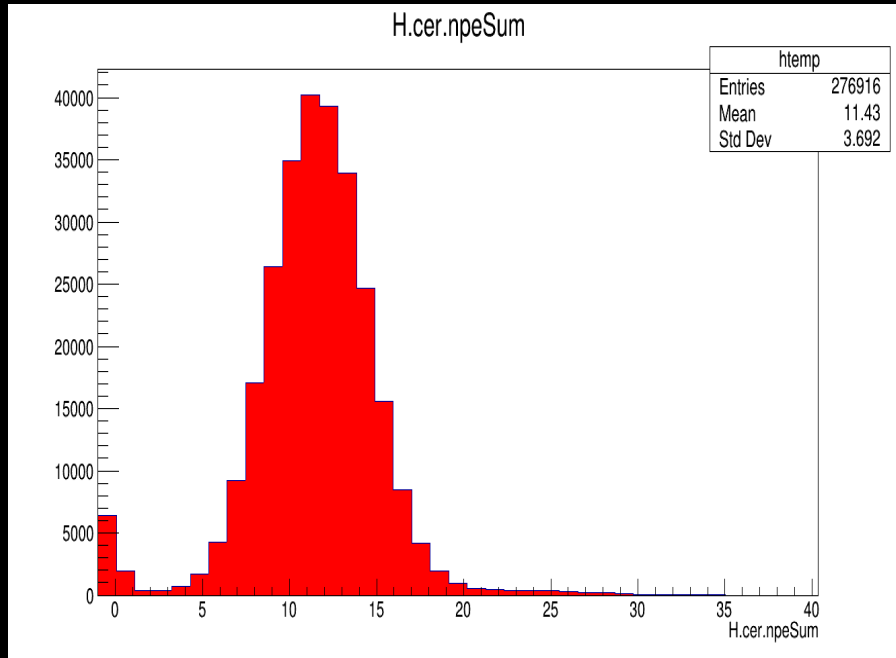
General Cuts

- General Cuts
 - $-0.08 < \text{H.gtr.th} < 0.08$
 - $-0.045 < \text{H.gtr.ph} < 0.045$
 - $-8 < \text{H.gtr.dp} < 8$
 - $\text{H.hod.goodstarttime} = 1$
 - $\text{H.dc.OutsideDipoleExit} = 1$
- For Cherenkov Efficiency
 - $\text{H.cal.etotracknorm} > 0.85 \ \&\& \ \text{H.cer.npeSum} > 2.0$
- For Calorimeter Efficiency
 - $\text{H.cer.npeSum} > 8.0 \ \&\& \ \text{H.cal.etotracknorm} > 0.7$

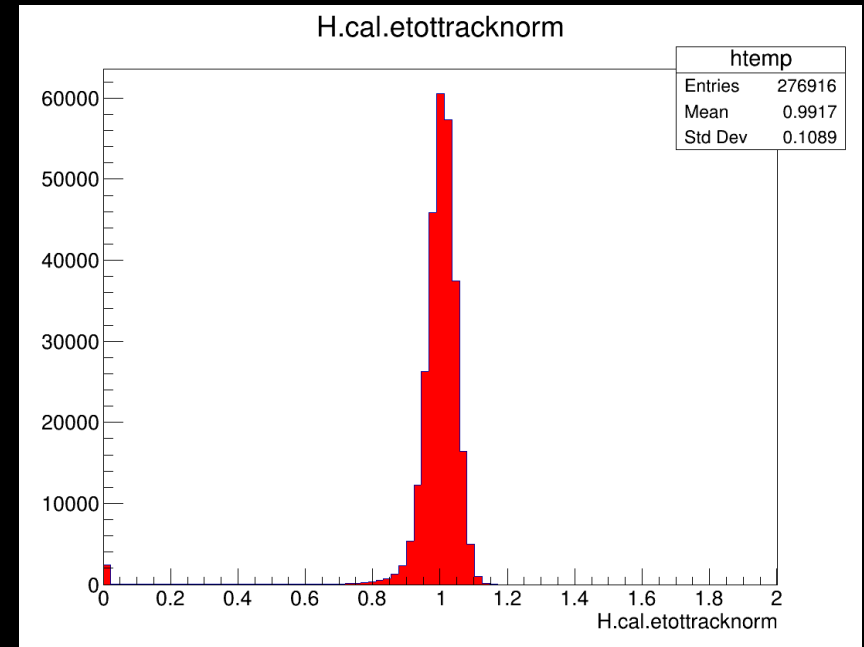
Heep Singles # 1

- Beam Energy = 3.835
- Run # 6600
- HMS
 - $P = 2.835$
 - Angle = 23.990
 - S1X rate = 63.755 kHz

Run # 6600



Cer Eff = 97.20 +/- 0.02

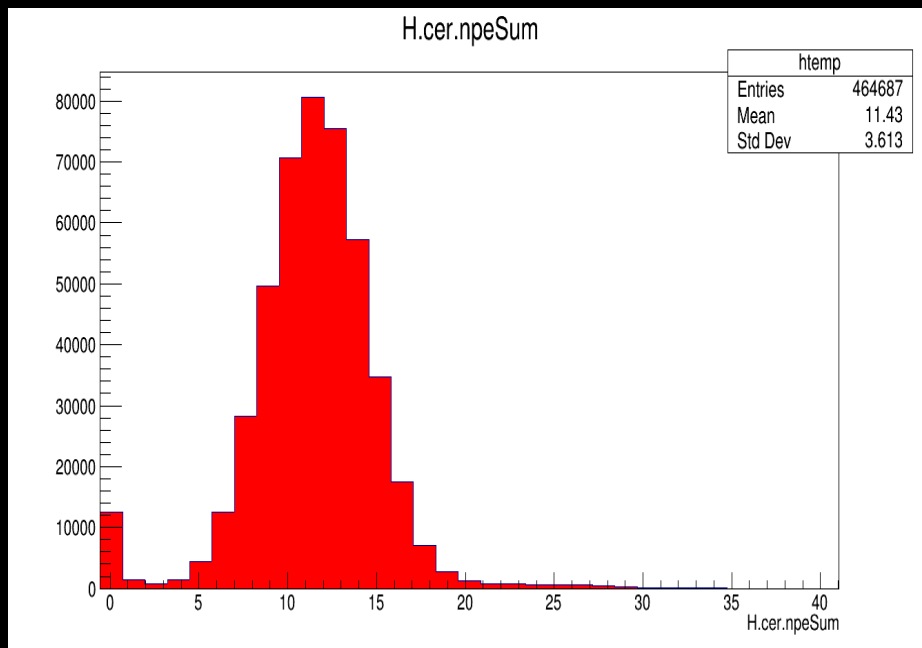


Cal Eff = 99.63 +/- 0.01

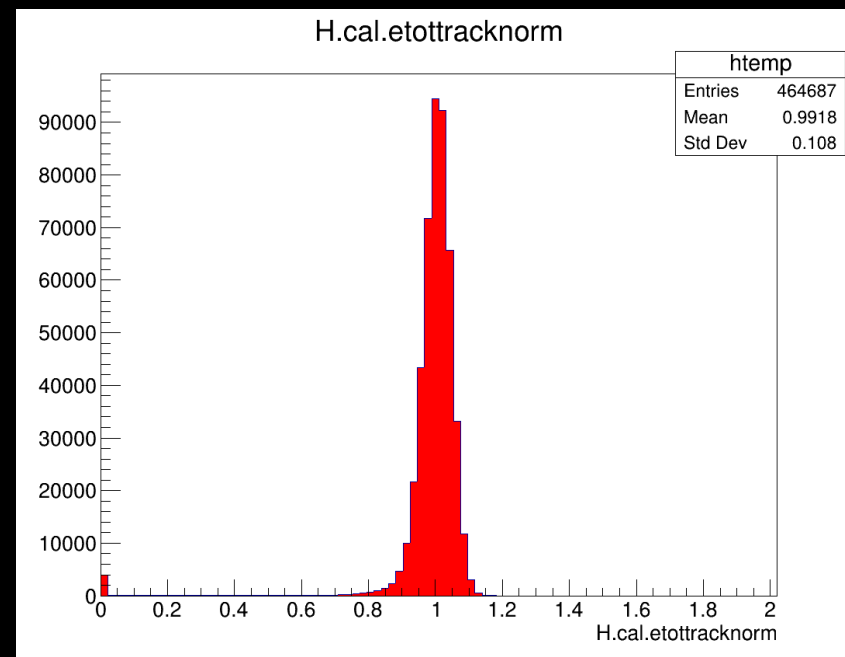
HeeP Singles # 2

- Beam Energy = 3.835
- Run # 6603
- HMS
 - $P = 2.713$
 - Angle = 25.985
 - S1X rate = 55.616 kHz

Run # 6603



Cer Eff = 97.31 +/- 0.02

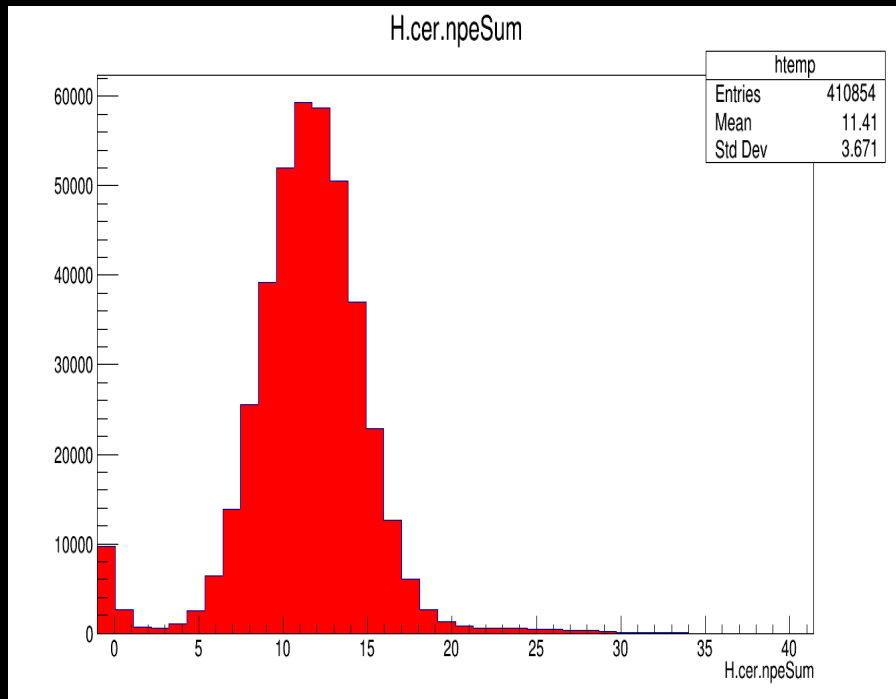


Cal Eff = 99.64 +/- 0.02

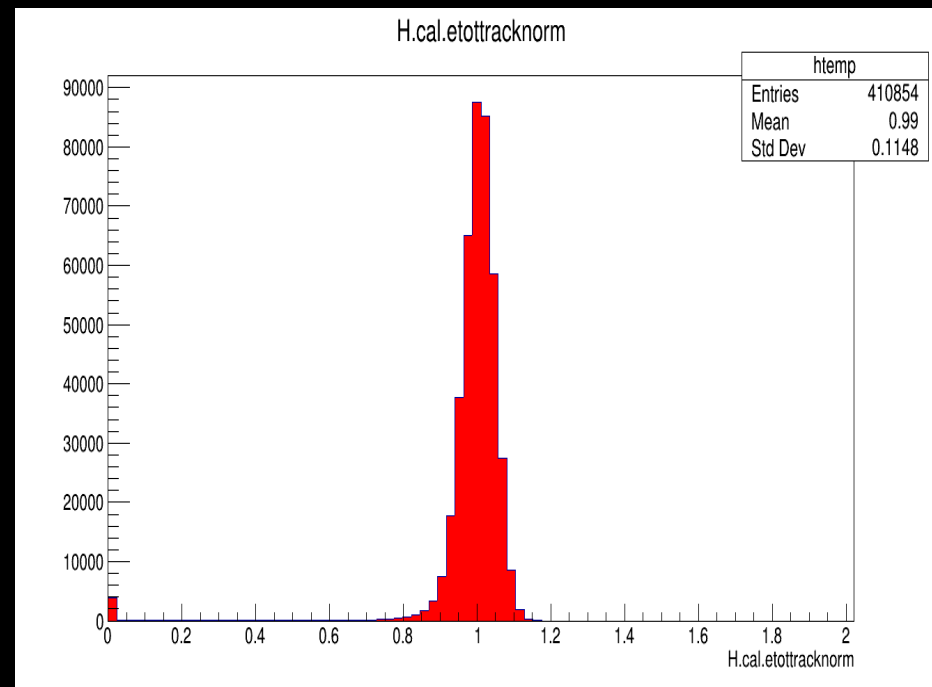
HeeP Singles # 3

- Beam Energy = 3.835
- Run # 6608
- HMS
 - $P = 2.583$
 - Angle = 28.185
 - S1X rate = 46.667 kHz

Run # 6608



Cer Eff = 97.34 +/- 0.05

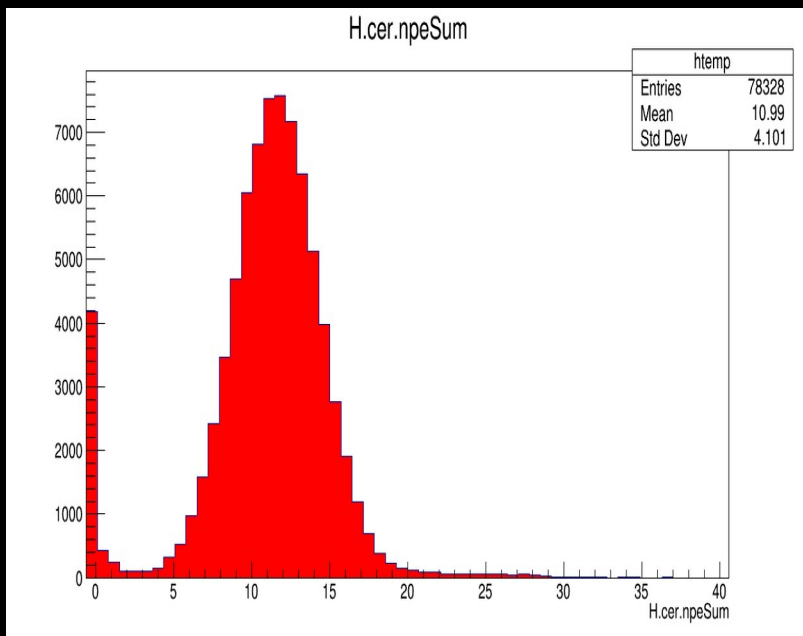


Cal Eff = 99.65 +/- 0.06

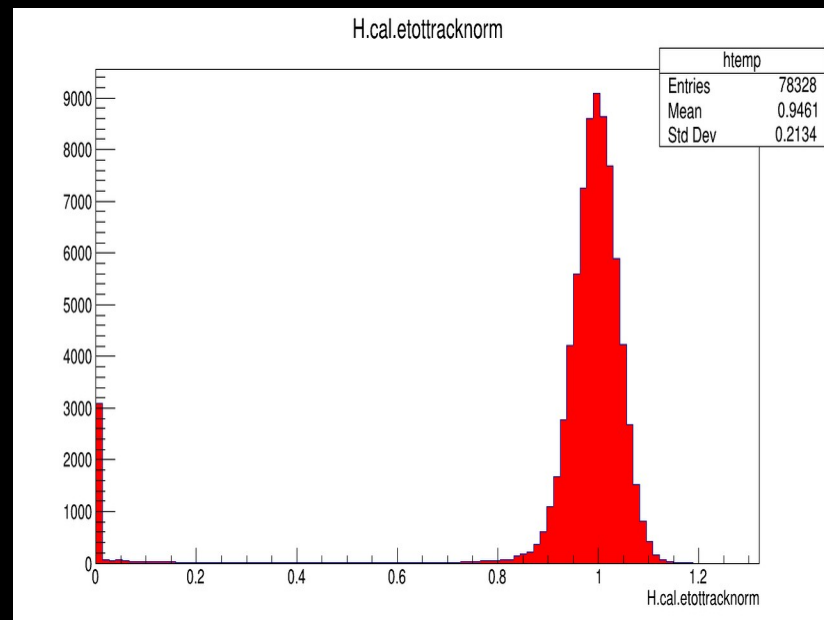
HeeP Singles # 4

- Beam Energy = 4.933
- Run # 6880
- HMS
 - $P = 2.583$
 - Angle = 34.20
 - S1X rate = 37.528 kHz

Run # 6880



Cer Eff = 97.46 +/- 0.05

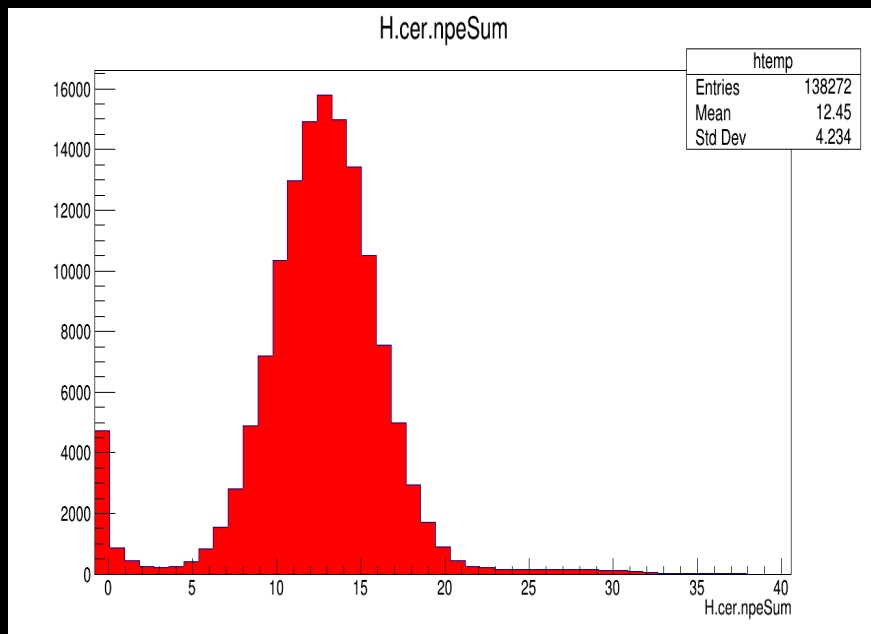


Cal Eff = 99.47 +/- 0.03

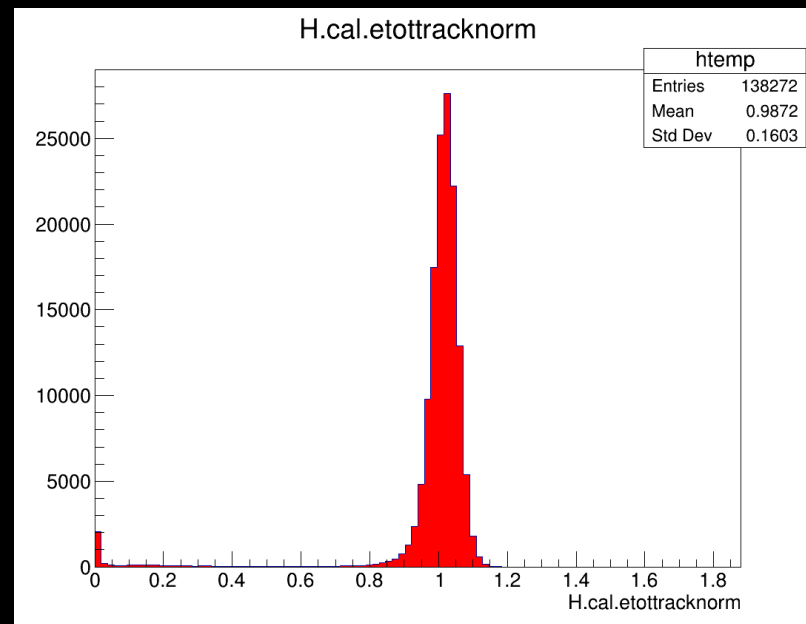
HeeP Singles # 5

- Beam Energy = 6.1901
- Run # 7852
- HMS
 - $P = 3.709$
 - Angle = 26.00
 - S1X rate = 68.875 kHz

Run # 7852



Cer Eff = 97.12 +/- 0.04

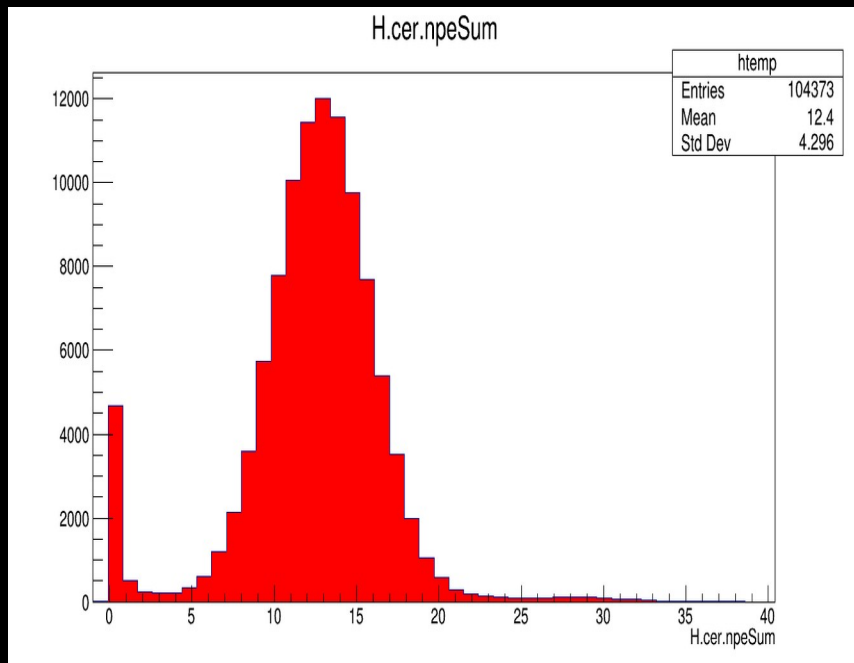


Cal Eff = 99.37 +/- 0.06

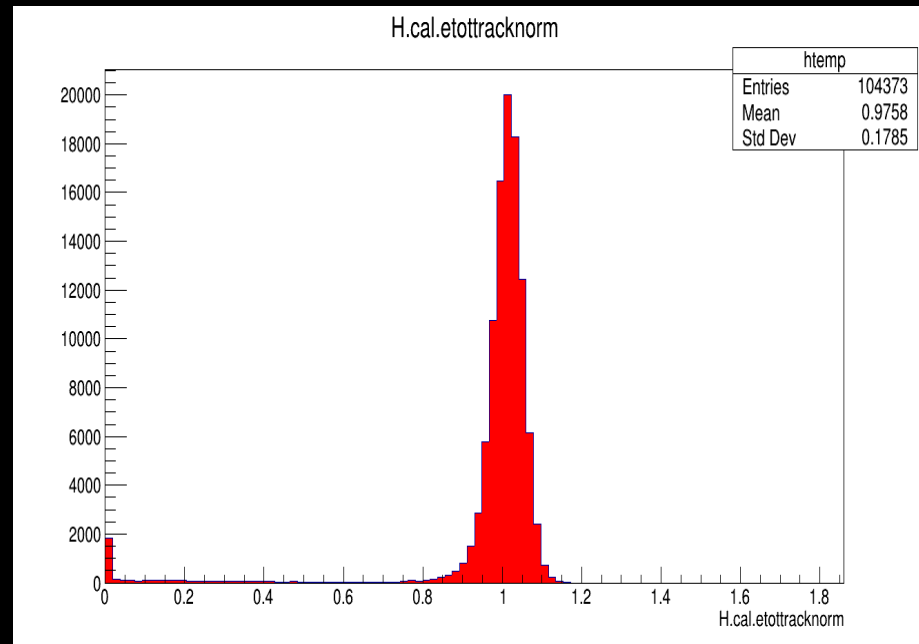
Heep Singles # 6

- Beam Energy = 6.1901
- Run # 7857
- HMS
 - $P = 3.491$
 - Angle = 28.00
 - S1X rate = 61.00 kHz

Run # 7857



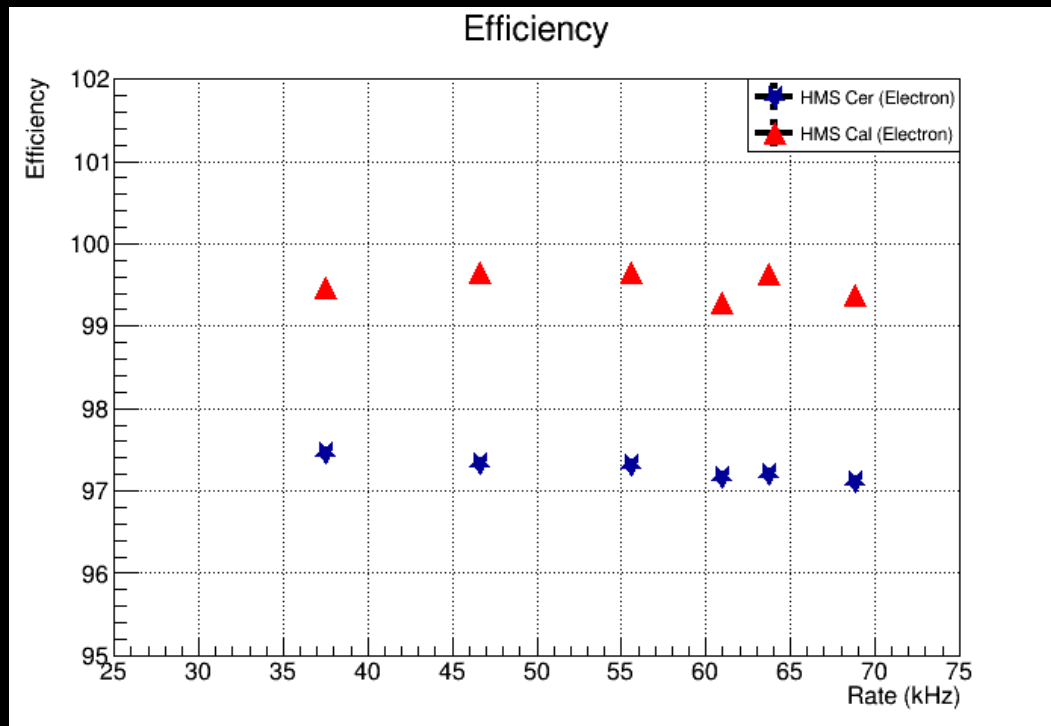
Cer Eff = 97.17 +/- 0.06



Cal Eff = 99.29 +/- 0.03

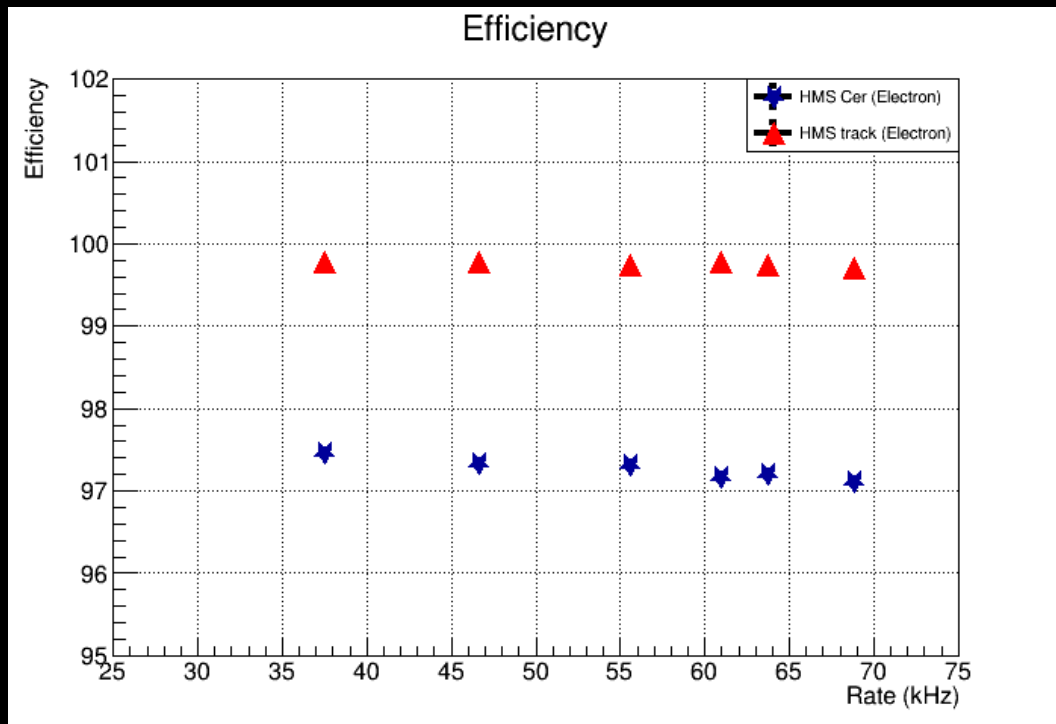
Rate dependence

- Rate dependence for both HMS Cer and HMS Cal (S1X rate).



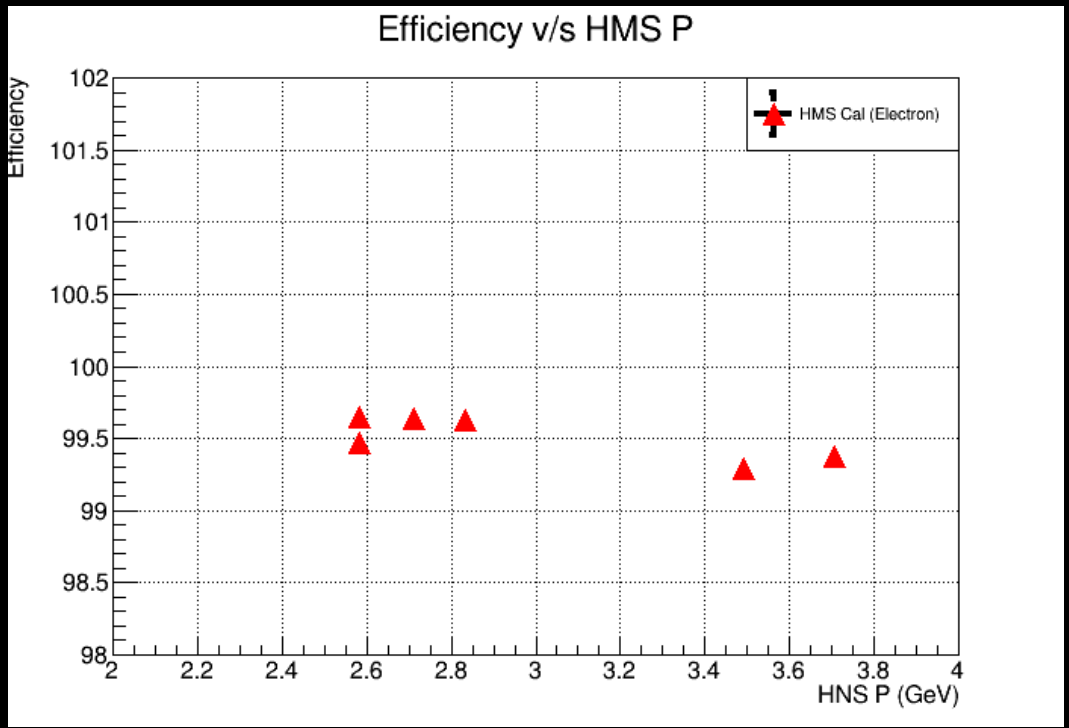
Rate dependence

- Rate dependence for both HMS Cer and HMS tracking (S1X rate).



Momentum dependence

- Momentum dependence for HMS Calorimeter Efficiency.



Summary

- Looked at Heep Singles for HMS Cer and Cal Efficiency.
- Only chose HMS momenta between 2 and 4 GeV.
- Minor rate dependence observed.