



Pion-LT Meeting

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HEEP Study

PionLT Experiment

Beam Energy (GeV)	Setting (HeePCoin - 9)	Run Numbers
5.986	HMS_p = -3.271, HMS_theta = 29.170, SHMS_p = 3.493, SHMS_theta = 27.495	13058, 13059, 13061, 13062, 13128
6.395 (s1)	HMS_p = -4.752, HMS_theta = 18.595, SHMS_p = 2.412, SHMS_theta = 37.970	16277 – 16279
6.395 (s2)	HMS_p = -4.391, HMS_theta = 21.095, SHMS_p = 2.792, SHMS_theta = 34.470	16280 – 16282
6.395 (s3)	HMS_p = -3.014, HMS_theta = 33.350, SHMS_p = 4.220, SHMS_theta = 23.115	16512 - 16517
7.937	HMS_p = -3.280, HMS_theta = 33.645, SHMS_p = 5.512, SHMS_theta = 19.265	14589 - 14600
8.479	HMS_p = -5.587, HMS_theta = 19.560, SHMS_p = 3.731, SHMS_theta = 30.020	16162 – 16165
9.177	HMS_p = -3.738, HMS_theta = 31.645, SHMS_p = 6.265, SHMS_theta = 18.125	11867 - 11879
9.876	HMS_p = -5.366, HMS_theta = 23.050, SHMS_p = 5.422, SHMS_theta = 23.050	13164 - 13169
10.549	HMS_p = -5.878, HMS_theta = 21.670, SHMS_p = 5.539, SHMS_theta = 23.110	14986 - 14993

■ Cuts for HeeP data.

HMS Cuts (Electrons)

$$-8 < H_gtr_dp < 8$$

$$-0.08 < H_gtr_th < 0.08$$

$$-0.045 < H_gtr_ph < 0.045$$

$$HMS_Cal_etottracknorm > 0.7$$

$$H_Cer_npeSum > 1.5$$

$$H_hod_goodstarttime == 1.0$$

SHMS Cuts (Protons)

$$-10 < P_gtr_dp < 20$$

$$-0.06 < P_gtr_th < 0.06$$

$$-0.04 < P_gtr_ph < 0.04$$

$$Ctime_epCoinTime_ROC1 - \text{Prompt Peak}$$

$$P_hod_goodstarttime == 1.0$$

■ Cuts for HeeP SIMC.

HMS Cuts (Electrons)

$$-8 < hsdelta < 8$$

$$-0.08 < hsxpfp < 0.08$$

$$-0.045 < hsyfp < 0.045$$

SHMS Cuts (Protons)

$$-10 < ssdelta < 20$$

$$-0.06 < ssxpfp < 0.06$$

$$-0.04 < ssypfp < 0.04$$

- **Applied global offsets to BE from 5.9GeV-9.9GeV and applied separate offsets to 10.6GeV**
- To calculate 10.6 GeV offsets, kept HMS and SHMS angle offsets fixed from global offsets.
- **Global In-Plane Offset (from Garth):**

Global In-Plane Offsets – Momentum and Energy offsets in 0.1% unit, Angle offset in mrad unit

BE	dBE	Global Offsets for 5.9 GeV to 9.9 GeV	
5984.8	-0.0500	HMS_dtheta	1.5000
6394.7	-0.1500	HMS_dp	0.0000
7937.6	0.2222	SHMS_dtheta	1.4000
8478.6	-0.1333	SHMS_dp	1.5000
9171.3	-0.0444	Offsets for 10.5 GeV	
9876.9	-0.2222	HMS_dtheta	1.5000
		HMS_dp	-3.2000
10546.8	-1.0000	SHMS_dtheta	1.4000
		SHMS_dp	1.7000

- Implemented Out-of-plane offsets (**HMS = +0.001875rad and SHMS = -0.000155rad**)

- **To test, kept all offsets same and changed SHMS_dp offset to 4.5000 (0.1%)**
- **Global In-Plane Offset (from Garth):**

Global In-Plane Offsets – Momentum and Energy offsets in 0.1% unit, Angle offset in mrad unit			
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9876.9	-0.2222	HMS_dtheta	1.5000
		HMS_dp	-3.2000
10546.8	-1.0000	SHMS_dtheta	1.4000
		SHMS_dp	4.5000

- Implemented Out-of-plane offsets (**HMS = +0.001875rad and SHMS = -0.000155rad**)

In Progress:

- Plan is to finalize offsets.
- Will update param files for 10.6GeV.
- Will work on HeePCoin Ratios.
- Will do Pass2 replays.