




# **Kaon LT Status Update**

**September 23rd, 2020**

Richard Trotta


$$P_{\text{HMS}} = -3.266$$
$$\theta_{\text{HMS}} = 12.53$$

- 55 uA
  - 5149, 5150, 5152, 5154
- 45, 30, 15, 5 uA
  - 5155, 5156, 5157, 5158
- Tracking efficiency
  - (50 uA) 98,97,97,97
  - 98,99,99,99

$$P_{\text{SHMS}} = 6.842$$
$$\theta_{\text{SHMS}} = 6.495$$

- 55 uA
  - 5149, 5150, 5153, 5154
- 45, 30, 15, 5 uA
  - 5155, 5156, 5157, 5158
- Tracking efficiency
  - (55 uA) 95,90,93,96
  - 97,98,98,99

# Cuts



- Current > 5uA
- Delta
  - HMS,  $(-8 < \text{delta} < 8)$
  - SHMS,  $(-10 < \text{delta} < 20)$
- xpfp
  - HMS,  $(-0.08 < \text{xpfp} < 0.08)$
  - SHMS,  $(-0.06 < \text{xpfp} < 0.06)$
- ypfp
  - HMS,  $(-0.045 < \text{ypfp} < 0.045)$
  - SHMS,  $(-0.04 < \text{ypfp} < 0.04)$

# Track cuts



- Hodo good scin hit
  - HMS, (goodscin=0)
  - SHMS, (goodscin=0)
- Hodo beta no track
  - HMS, ( $0.8 < \text{beta} < 1.3$ )
  - SHMS, ( $0.5 < \text{beta} < 1.4$ )
- Plane hit
  - HMS, ( $\text{dc1} < 20, \text{dc2} < 20$ )
  - SHMS, ( $\text{dc1} < 20, \text{dc2} < 20$ )
- ntrack
  - HMS, ( $\text{ntrack} > 0$ )
  - SHMS, ( $\text{ntrack} > 0$ )

# Equations

$$Q_{tot} = \left(\frac{q_{bcm1}}{t}\right)$$

- Scalar

$$Y_{scalar} = \frac{N_{scalar}}{Q_{tot}}$$

$$N_{scalar} = PS * \Sigma(EvtType)$$

- No track

$$Y_{notrack} = \frac{N_{accept}}{Q_{tot} \epsilon_{cpuLT}}$$

$$N_{accept} = PS * \int (W)$$

- Track

$$Y_{track} = \frac{N_{accept}}{Q_{tot} \epsilon_{track, noPID} \epsilon_{cpuLT}}$$

$$cpuLT = 1 - \frac{EvtType}{TRIG_{accept} - edtm}$$

$$track = \frac{\Sigma track_{notrack}}{\Sigma track_{ntrack}}$$

