MICE Tracker Status:

Status -
1) Tracker set up Lab 7, R1 RAL
2) T1 and T2 commissioned with cosmics.
3) NIM Paper in progress.

Present Issues -
1) Leak in one Cassette of Cryo-1 possibly cold period in January.
2) A. Bross to repair ASAP.
3) Temperature control heater to be installed for long term remedy.
Tracker 1 performance (from paper)

<table>
<thead>
<tr>
<th>Station</th>
<th>Efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>99.8 ± 0.1</td>
</tr>
<tr>
<td>2</td>
<td>99.9 ± 0.1</td>
</tr>
<tr>
<td>3</td>
<td>99.8 ± 0.1</td>
</tr>
<tr>
<td>4</td>
<td>99.9 ± 0.1</td>
</tr>
<tr>
<td>5</td>
<td>99.8 ± 0.1</td>
</tr>
</tbody>
</table>
Tracker 1 performance: (from A. Fish Thesis)

Mean 8.89 +/- 0.05 PE

<table>
<thead>
<tr>
<th>Tracker</th>
<th>Measured Efficiency (%)</th>
<th>Expected Efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>99.81 ± 0.04</td>
<td>99.80 ± 0.18</td>
</tr>
<tr>
<td>2</td>
<td>99.53 ± 0.11</td>
<td>99.77 ± 0.18</td>
</tr>
</tbody>
</table>
Tracker paper issues

• 11th hour: just before submission:
  – Mistake spotted:
    • Symptom: A. Fish’ analysis ≠ D. Adey’s analysis
      – Traced to mistake in reading list of cosmic-data files
  – Issue:
    • Once error corrected, MC and data showed different residuals:
      – MC similar \( x \) and \( y \)
      – Data \( \textit{different} \) \( x \) and \( y \)
      – Expectation: agrees with MC

• So, now working through calculations in reconstruction again to find source of difference
  – Expect to complete ‘in a couple of weeks’
Tof 1/2/3 Summary

MICE Collaboration

MICE-NOTE-DET-286

2 March 2010

The construction of the MICE TOF2 detector

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TOFs INSTALLED in MICE HALL
Tof2/KL Stand
Fig. 14. Time difference $\Delta t_{XY}$ between vertical and horizontal slabs in TOF0 (left panel) and TOF2 (right panel). Trigger is on TOF1.

Fig. 15. Time of flight between TOF0 and TOF2 (left panel) and TOF1 and TOF2 (right panel) for the pion beam. The baseline between TOF1 and TOF2 is presently only 2.42 m, giving a poor separation between forward flying muons and pions.
Time resolution after the calibration:

- TOF0 – 50ps
- TOF1 – 63ps
- TOF2 – 51ps
CKOV Status

- CKOVs running well in DSA.
- T & RH monitoring, some alarming (RH<30%).
- Change to 500 MHz fadc in 2009. (8 bits)
- Recalibration by Vasil.
- NPE = \( \frac{(Q-Q_{0pe})}{Q_{1pe}} \) -> Online
- Integration in to PID. Online/Offline.
- Plan for auto-calibration.
\[ N = N_0 + N \sqrt{(1 - \frac{p_{th}}{p})^2} \]

\[ N_\beta = 1 \]
Vassil Verguilov - CM25

CKOV TOF Correlations

337 MeV/c pi/mu

300 MeV/c electrons

150 MeV/c electrons

19 pe /40_{th} (1.12)

15 pe /26_{th} (1.07)
KL Studies - Vittorio P/Mariyan B

1) KL Calibration.
2) $\pi/\mu/e$ Range/Punch study.
3) TOF 0/1/2 used to estimate $P_{\text{beam}}$ at KL entrance momentum.
4) Measure fraction entering Tag counters.

L. Cremaldi: CM26 U.C. Riverside
Graphics Results

- Almost all muons with $P \geq 150$ MeV/c at KL entrance will reach EMR.
- Almost all muons with $P \leq 80$ MeV/c at KL entrance will be killed in KL.
- 83% of pions with $P \geq 160$ MeV/c will reach EMR.
- Almost pions with $P \leq 100$ MeV/c at KL entrance will be killed in KL.
- Fraction of electrons with $50 \leq P \leq 120$ MeV/c reaching EMR is 50-80%.
Summary

• MICE Detector Package soon to be completed.
• 1st level commissioning/calibrations in place.
• TOFs (CKOV) being used in beamline characterizations.
• Some thought to long range gain and light collection monitoring.
• Some thought to movement and installation in MICE Hall.