Status of MICE CKOV Detector

Daniel M. Kaplan

NFMCC Friday Meeting
Fermilab
May 4, 2007
Status of MICE CKOV Detector

Daniel M. Kaplan

(representing UMiss & Iowa groups as well)

NFMCC Friday Meeting
Fermilab
May 4, 2007
CKOV Design
CKOV Design

Aerogel Counter

Lucien Cremaldi*, MICE Collaboration Meeting

D. M. Kaplan, IIT
CKOV Design

Cherenkov 1:
• CKOV1 in tricky momentum range:
  – 200 <~ p! <~ 300 MeV/c
  – has increased with time as beamline and TOF designs have settled:
    \[ p! = p_{\text{nom}} + E_{\text{TOF0}} + E_{\text{diffuser}} + 0.5 E_{\text{absorber}} \]

  where \( p_{\text{nom}} = \{ 140 | 200 | 240 \} \) MeV/c

• 2 solutions under consideration:
  – RICH / DISC counter requires ~100 PMTs
  – aerogel-combination threshold counters w/ high-density aerogel
  – requires R&D on high-index aerogel (\( n = 1.07, 1.12 \))

\[ n_1 = 1.07 \]
\[ n_2 = 1.12 \]
CKOV Design

Aerogel Counter

\[ n_1 = 1.07 \]
\[ n_2 = 1.12 \]

n\(_{1}\) = 1.07

n\(_{2}\) = 1.12

conical mirrors
CKOV Design

- Drawings done (thanks, Ghislain!):
CKOV Design

- Drawings done (thanks, Ghislain!):

![Diagrams of CKOV Design](image-url)
CKOV Design

- Drawings done (thanks, Ghislain!):

UMiss

Iowa
CKOV Design

• Drawings done (thanks, Ghislain!):

UMiss

Iowa

IIT
CKOV Status

• Parts ordered (aerogel, steel plate, plastic plate, tooling, mechanical parts - springs, rods, ...)

• Some already delivered or on hand

• Machining starting

• Hope to be done in June
CKOV Status

- Parts ordered (aerogel, steel plate, plastic plate, tooling, mechanical parts - springs, rods, ...)
- Some already delivered or on hand
- Machining starting
- Hope to be done in June

▷ Now iterating assembly/delivery/commissioning plans:
  - assemble at FNAL? UMiss? RAL?
  - how much time/$ to ship these heavy (~ton) units?