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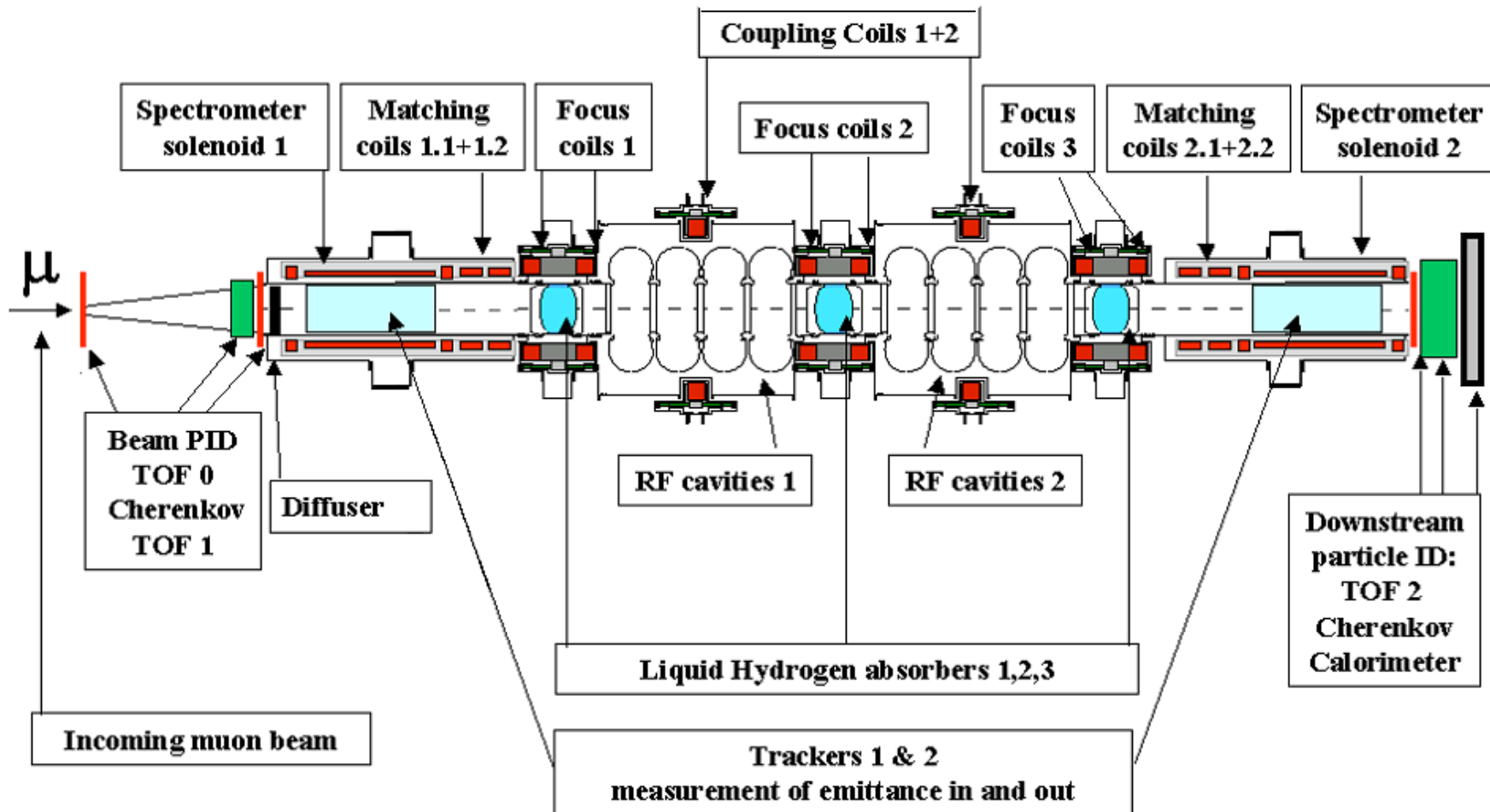
Neutrino Factory and Muon Collider Collaboration Meeting
Fermilab, Batavia , Illinois, 17-20 March 2008
(on behalf of the MICE PID Group)

MICE PID Summary

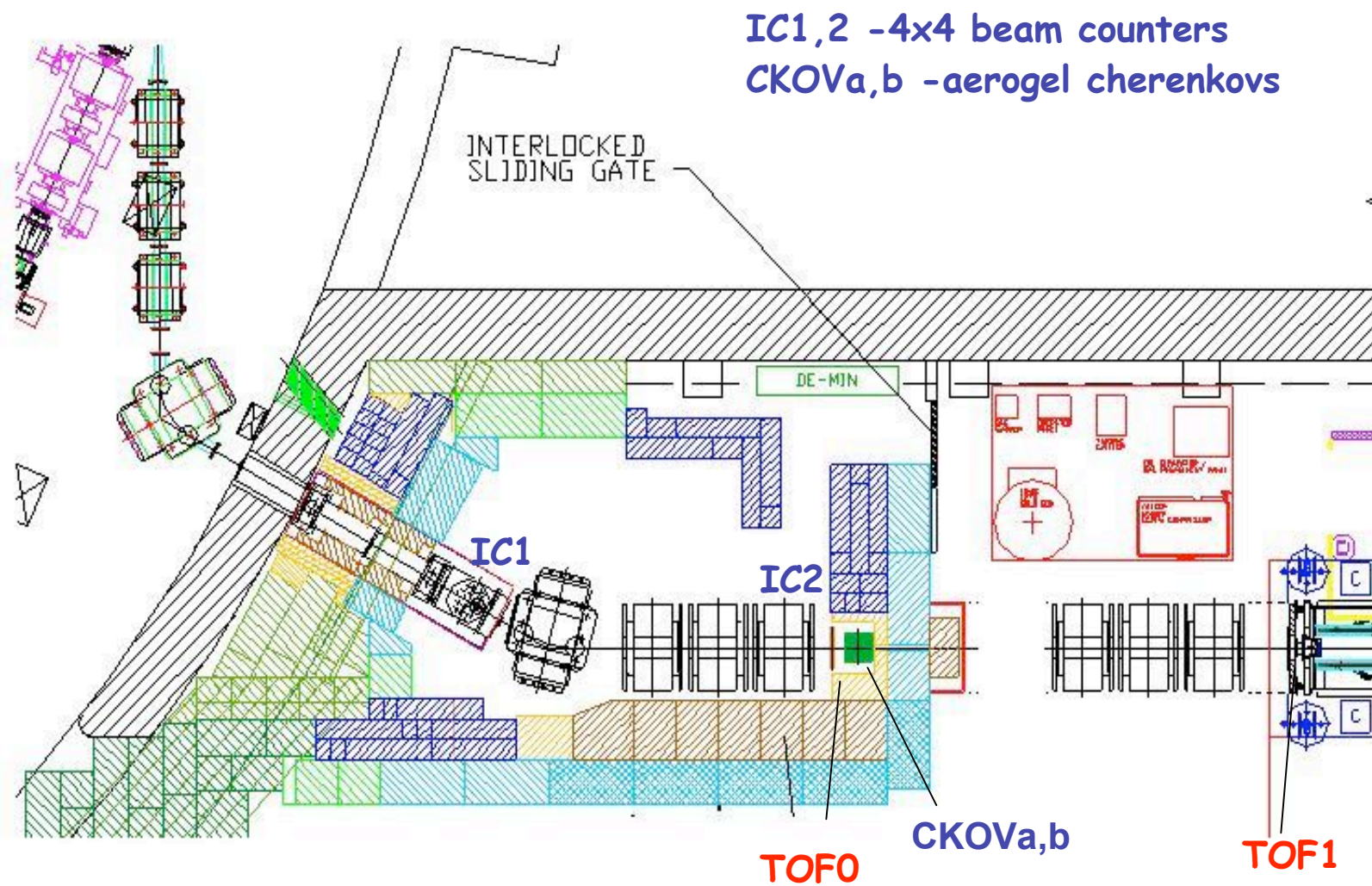


- MICE Particle ID Important to insure high muon purity for muon cooling measurement.
- 2 Threshold Cherenkov Beam Counters used for pi-mu ID in the beamline.
CKOVa,b can be used in beam tuning for pi/p ratios.
-
- TOF System TOF0, TOF1, TOF2.
<80ps TOF resolution for excellent e, mu, pi, K, p id.
Can provide secondary momentum measurement.
- KL/SW provide final e/mu tag.

MICE Final Layout

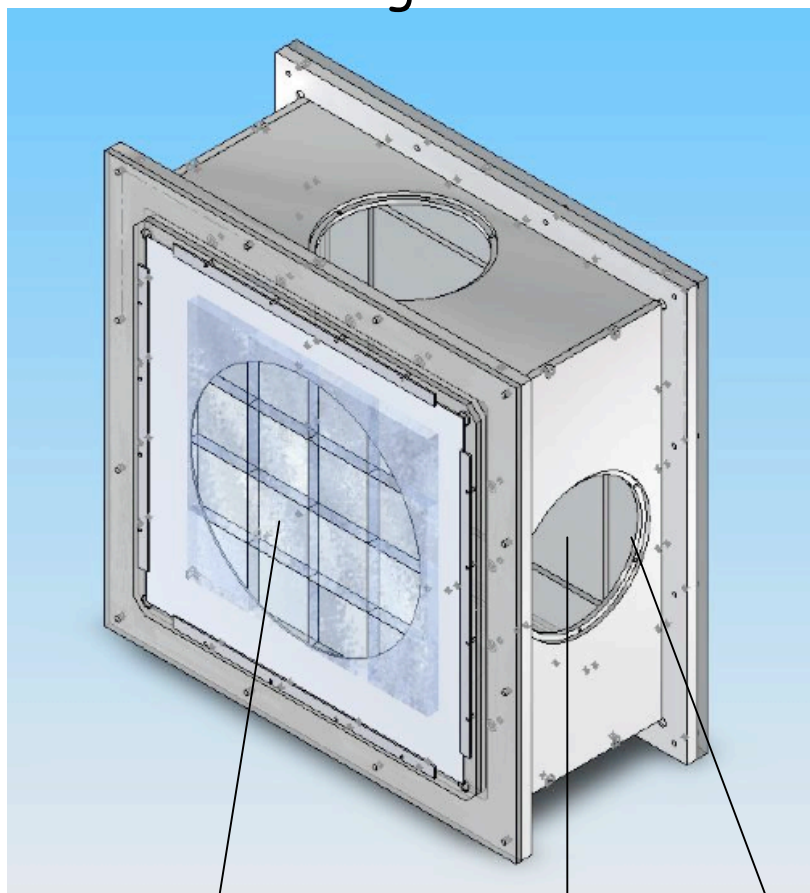


MICE Beamline- Phase1/2 Startup





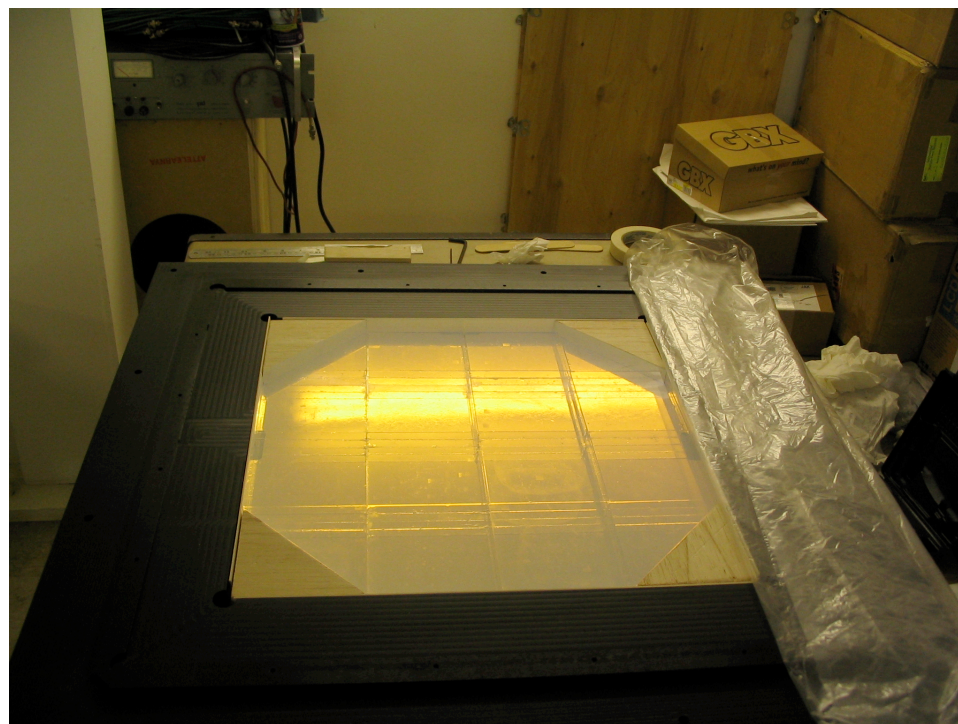
Aerogel box



radiator

Reflector Panels
(not shown)

8" PMT port

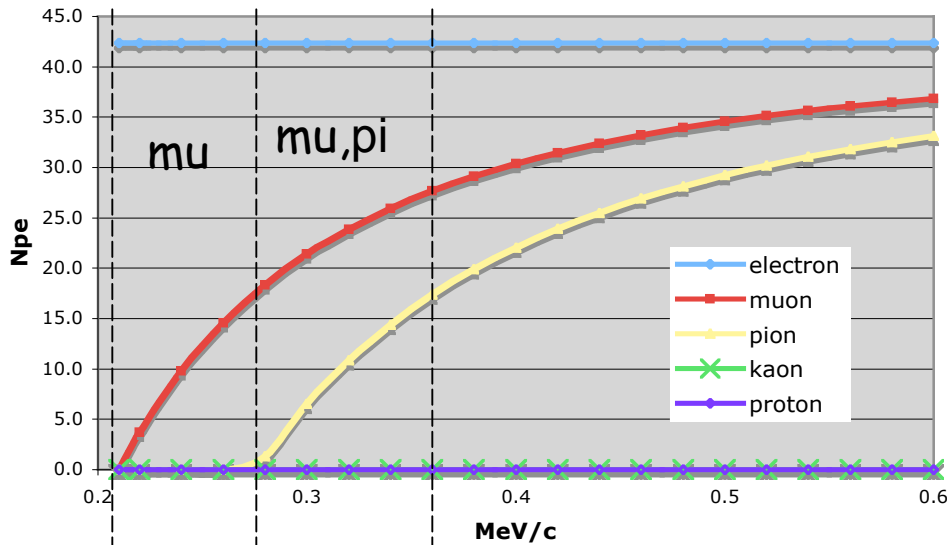


Aerogel radiator compartment

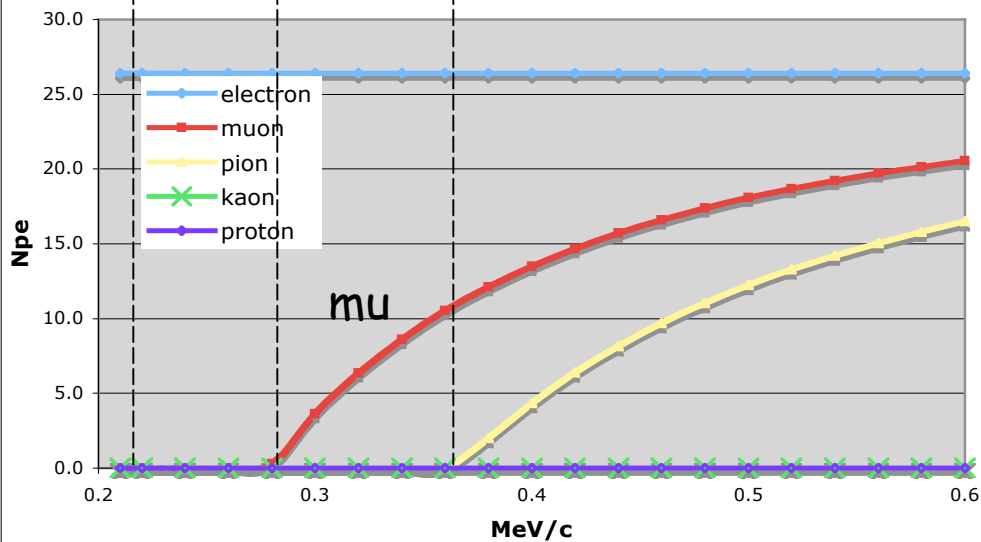
Cherenkov Light Curves



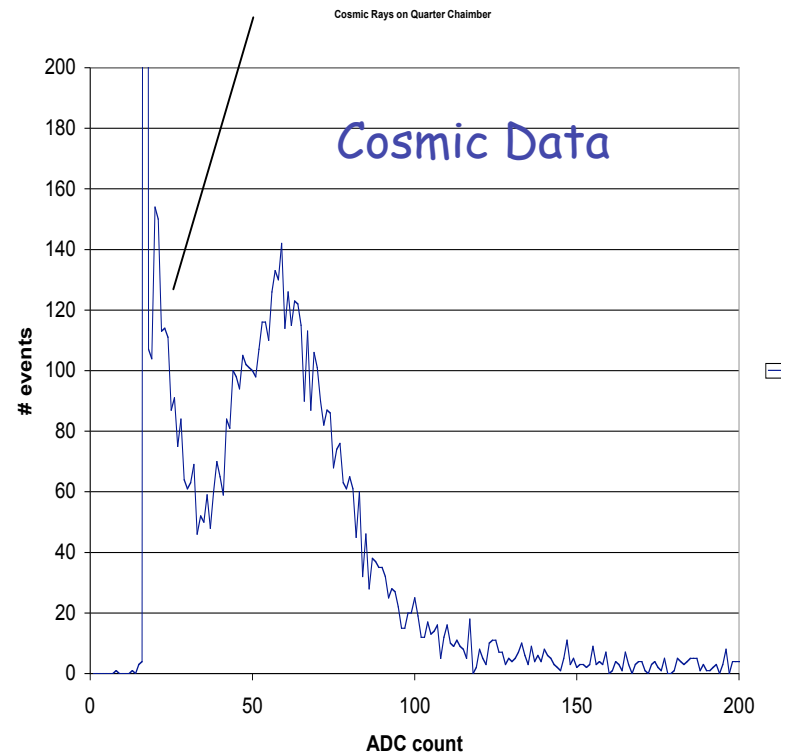
Cherenkov Threshold Curves- 1.12 Aerogel



Cherenkov Threshold Curves- 1.07 Aerogel



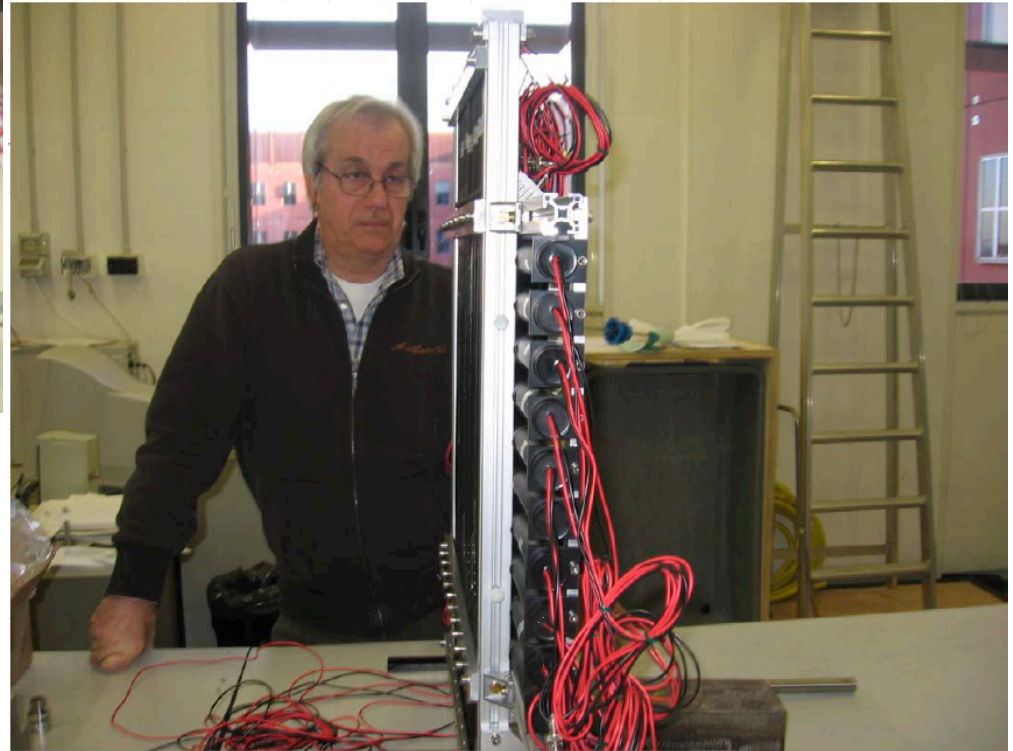
- Mu-pi threshold id in $p = 220-360 \text{ MeV}/c$.
- Pi-p $p = >280 \text{ MeV}/c$.
- Additional ADC information from 1PE PMTs.



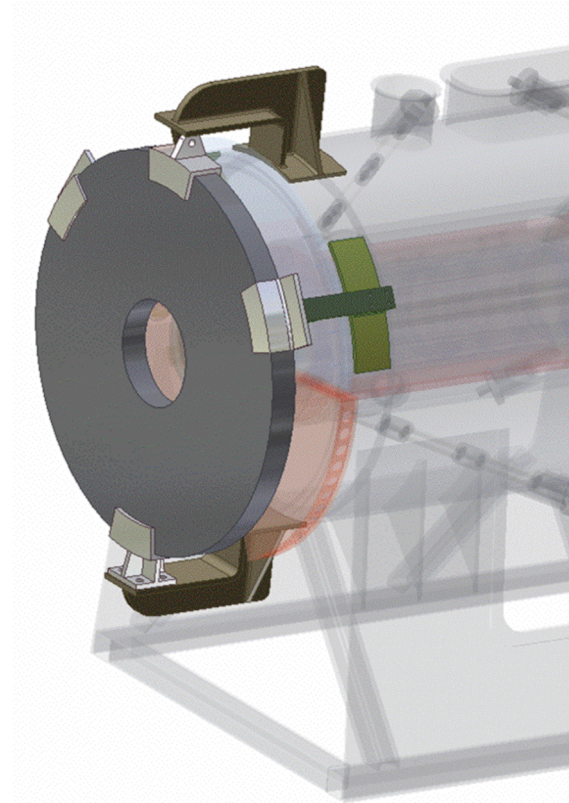
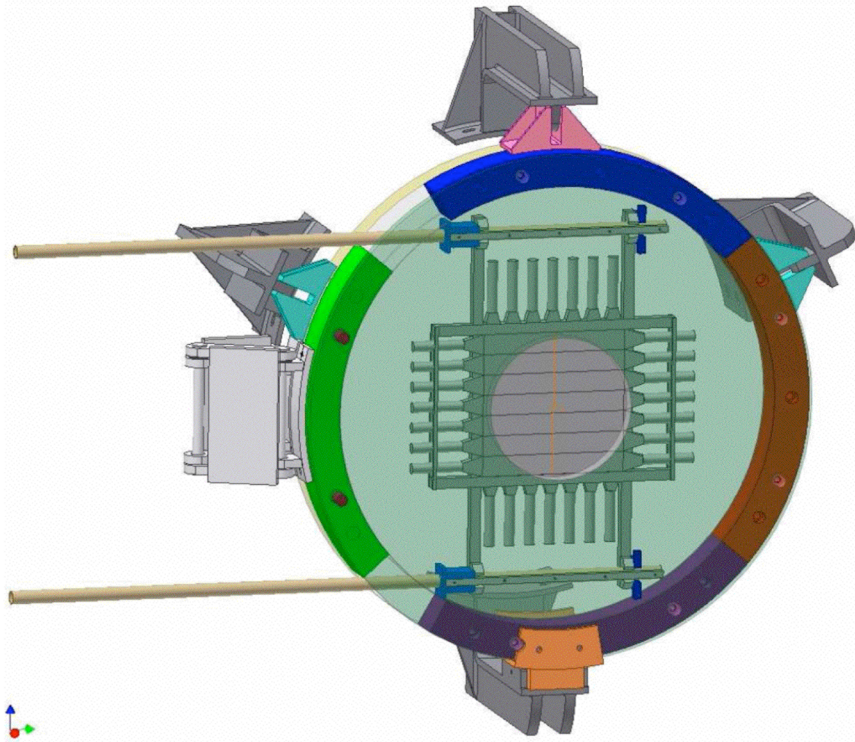
TOF0/1 Assembly - Milano



- TOF assembly at Milano.

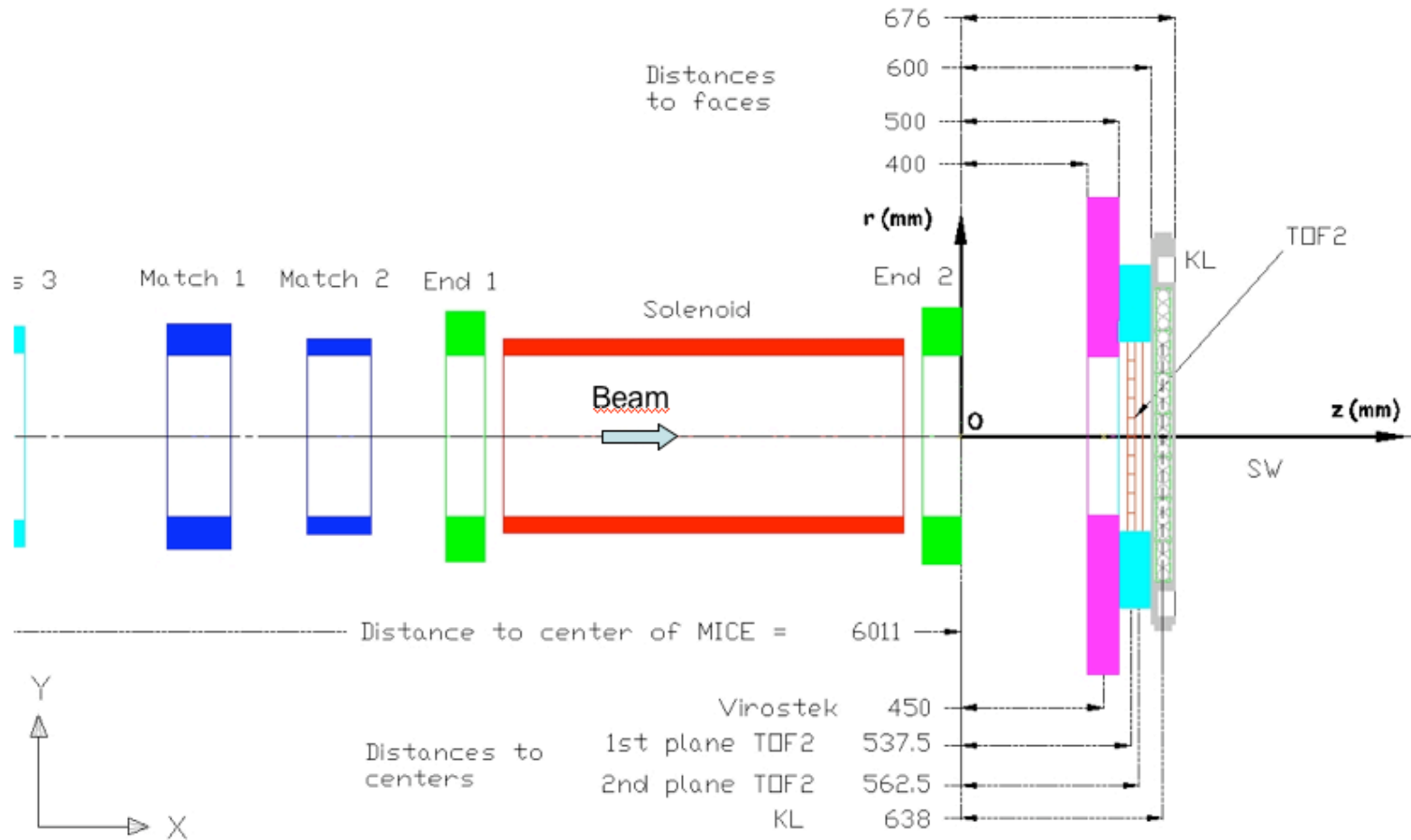


TOF1 - Virostek Shield

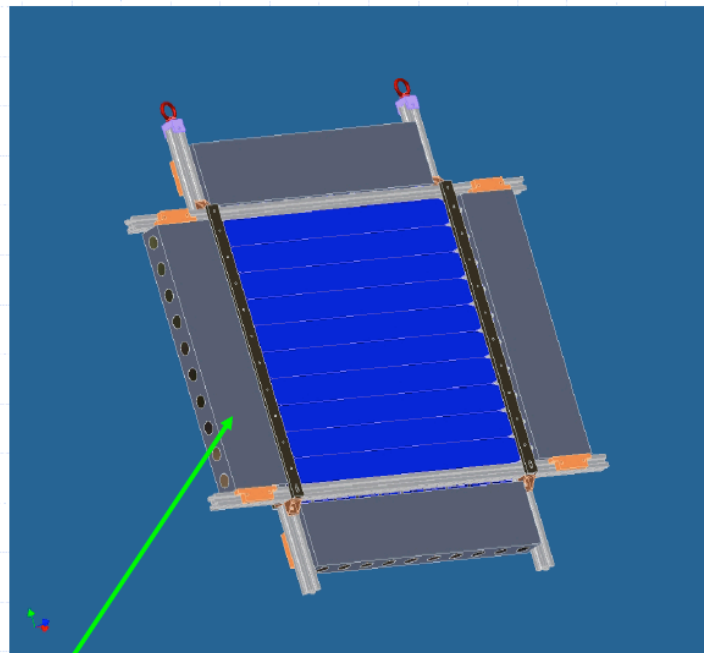


- TOF1 PMTs need magnetic shielding. S. Virostek design.
- Counter and shield fabrication in progress.

Rear PID Layout



TOF2 Local Shielding



~30 Kg

Assuming local PMT shield will work for TOF2

- CAD design for TOF2 frame+local bar PMT shielding+ support
- structure is not much more complicate and expensive than not shielded TOF2

M. Bonesini - CM20 RAL 11-02-08

- TOF2 PMT studies show **Local Shielding** adequate.
- Counter and shielding fabrication in progress.

SW - Fiber Calorimeter - Trieste



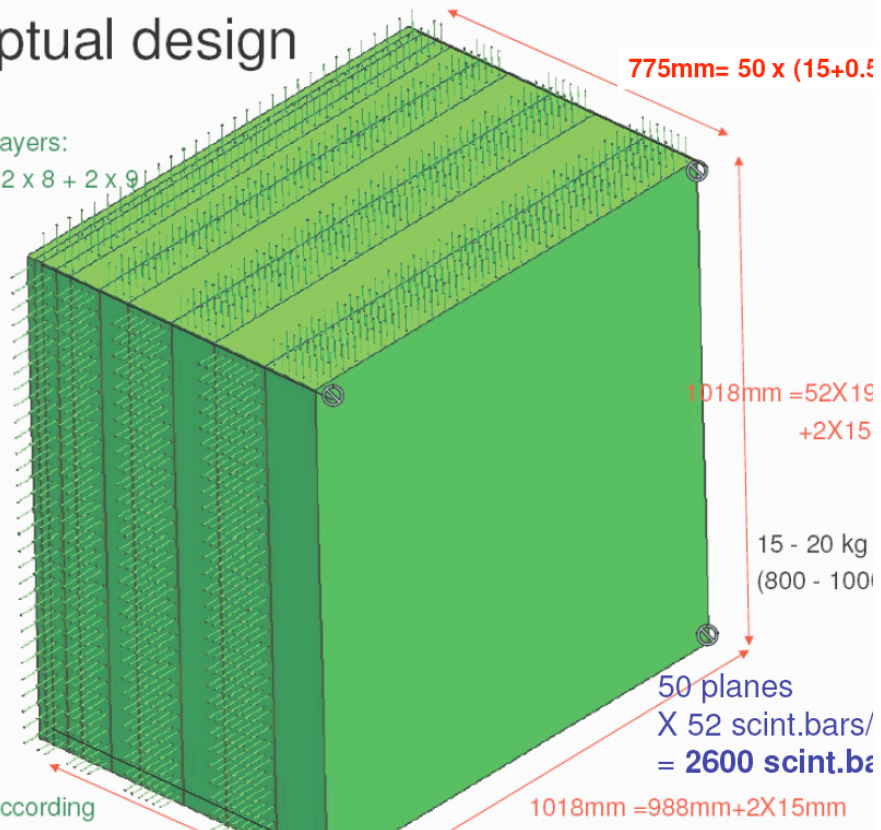
Conceptual design

50 planes in
10 variable thickness layers:
 $2 \times 1 + 2 \times 2 + 2 \times 5 + 2 \times 8 + 2 \times 9$

Lateral segmentation
according to rate!

Time measurements
MAY help with
coordinate
reconstruction.

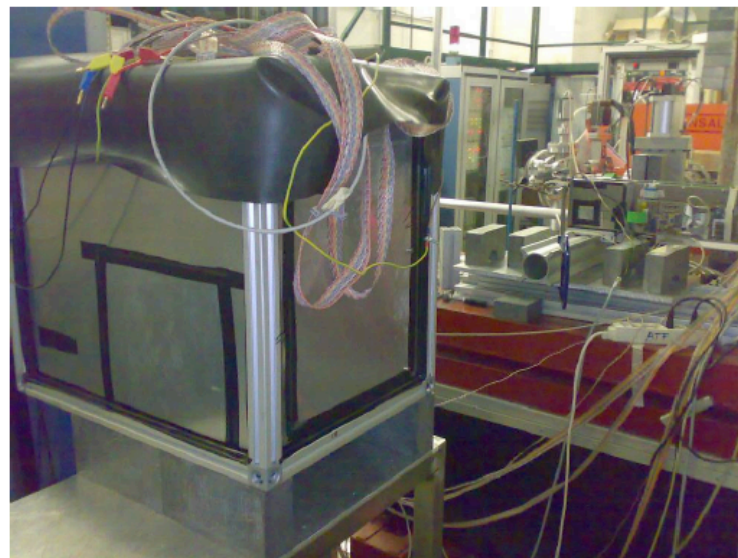
Flexible fiber bundling
Number of channels according



Sci/Fi Calorimeter

- Trieste- PMTs, Mech
- Fermilab- Sci/fibers
- Geneva- Electronics
- Early 2009

SW Development- Trieste

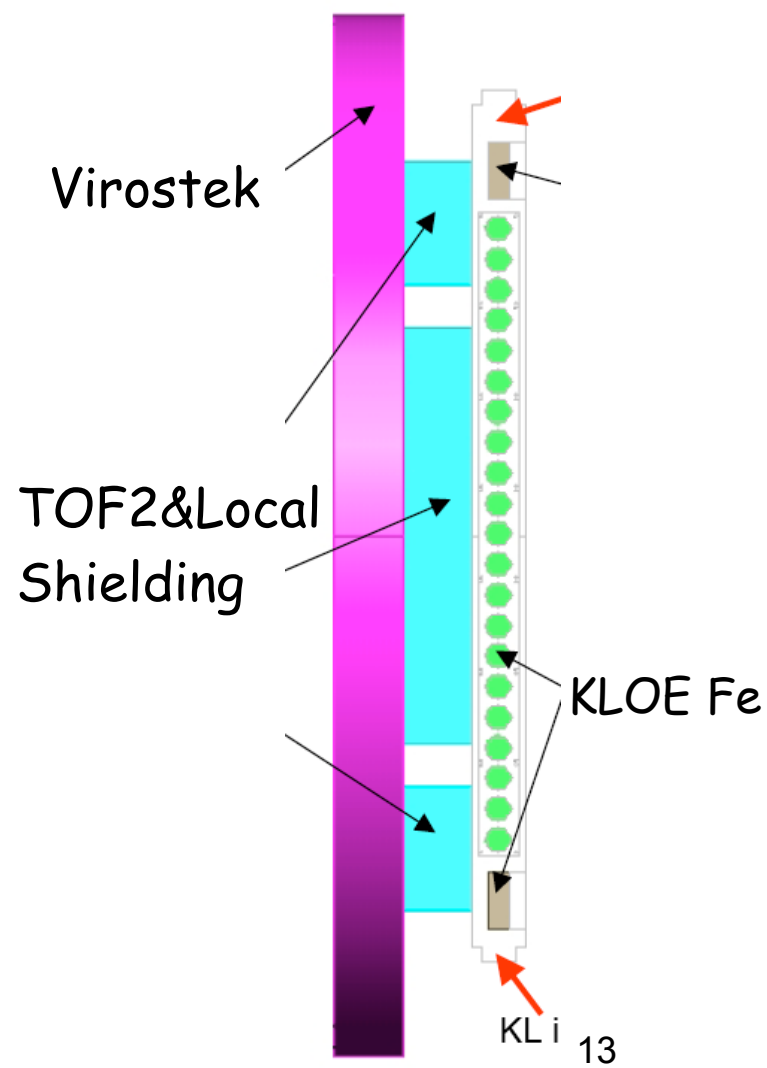
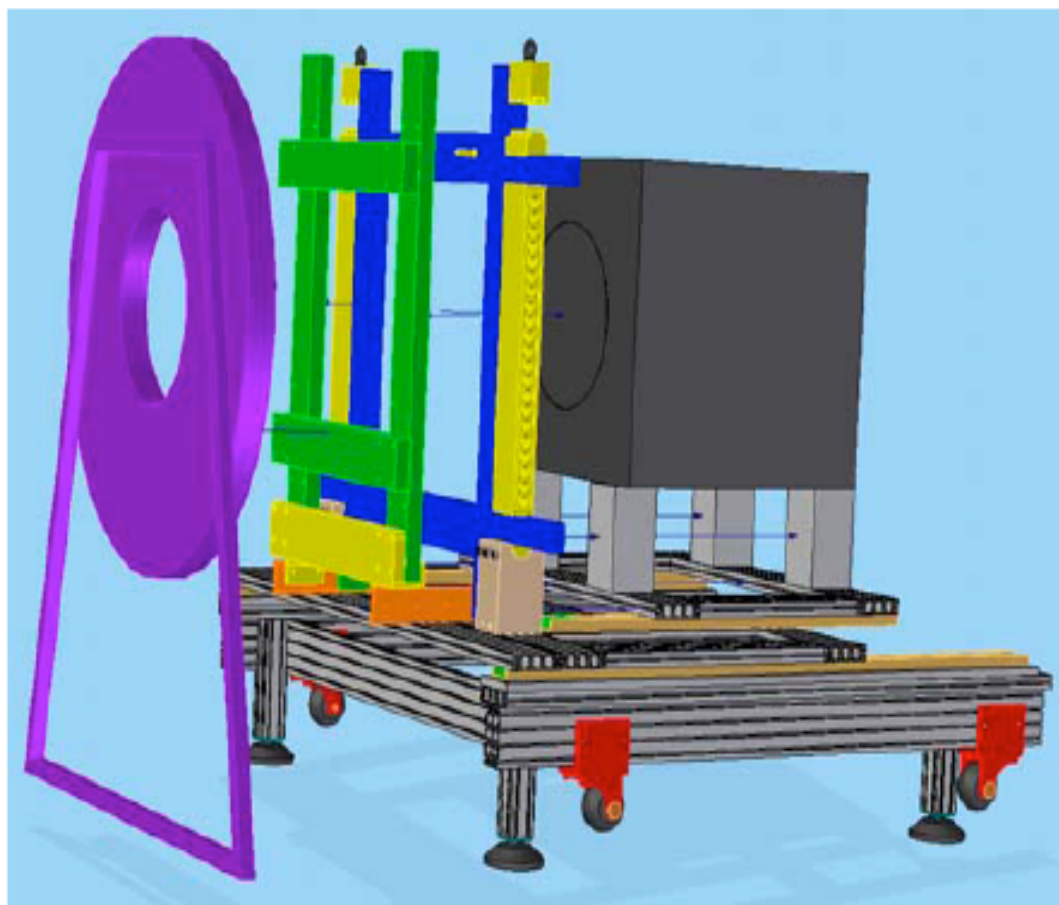


Downstream Stand and Assembly - RomaIII

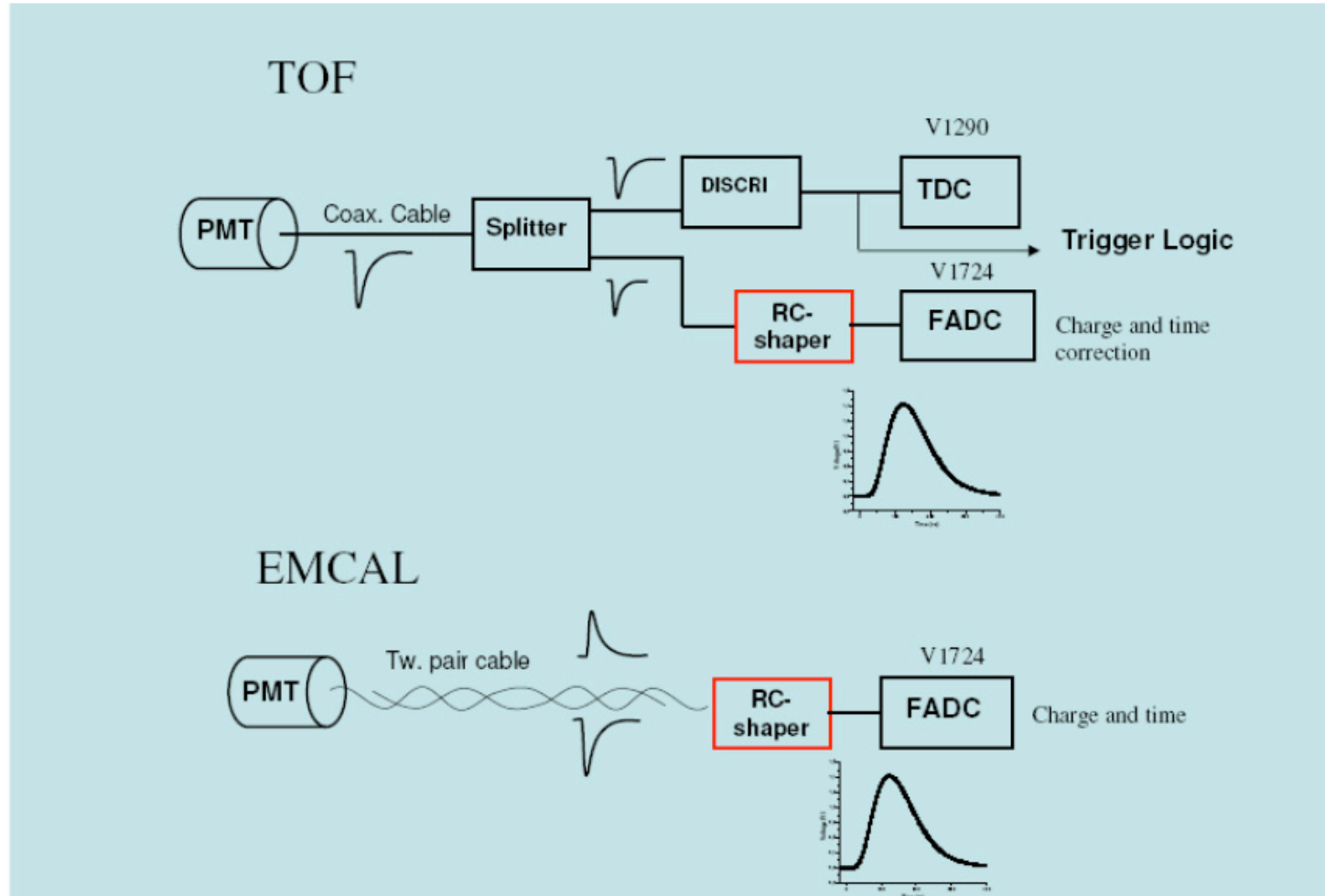


V-Shield TOF2/KL SW(50 plane SiFib)

TOF2/KL Shield Overlap.



PID ADC Shaper for TOFs/KL and eventually SW (Ilko Rusinov)



Summary



- CKOVa,b to be installed at MICE in March for beamline shakedown.
- TOF0 completed but PMT issues and held back.
- TOF1/2 assembly underway.
- TOF1 Shielding issues solved by Virostek shield plate.
- TOF2/KL Local shields seem adequate and preferred solution.
- SW prototypes built and production of modules to begin soon.
- Rear PID integration stand under development.
- TOF/SW/CKOV Electronics nearing completion.