2nd mRICH Beam Test - Readout

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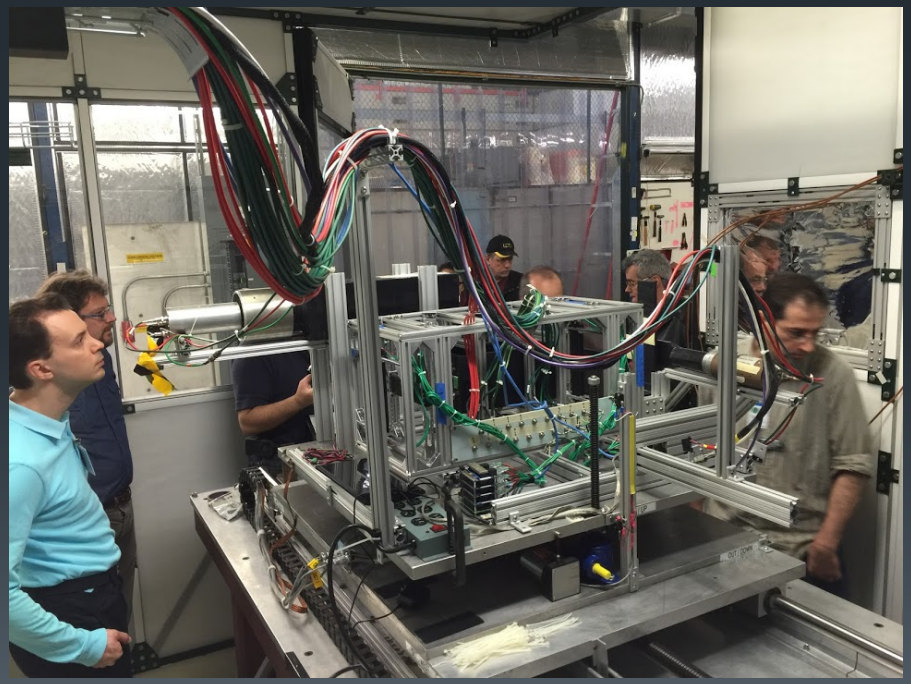
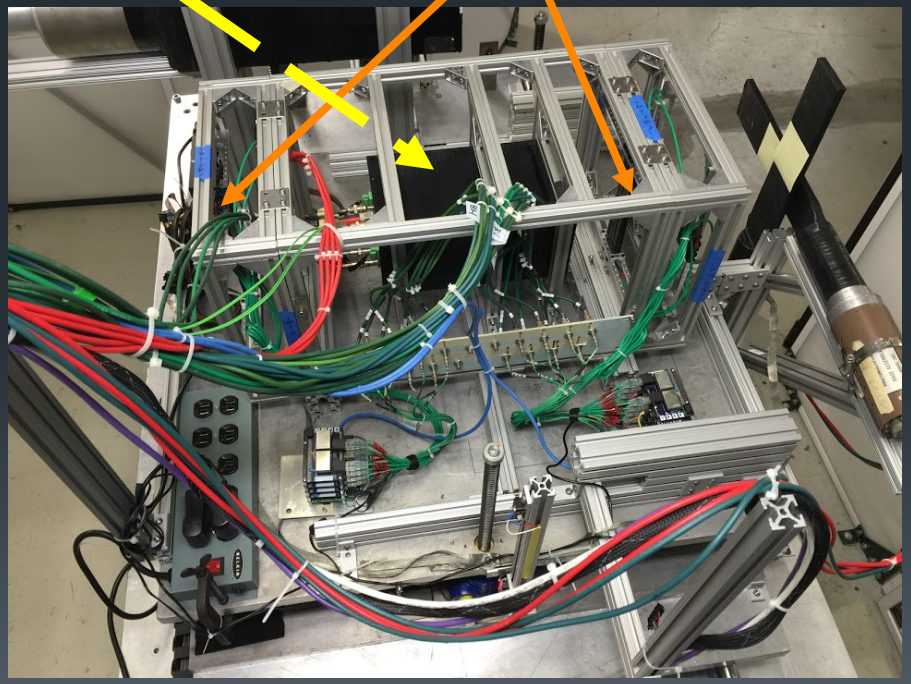
Test was done in April of 2016.

A few slides from the 1st beam test

Assemble the mRICH at Fermilab - Photosensors were readout by INFN group

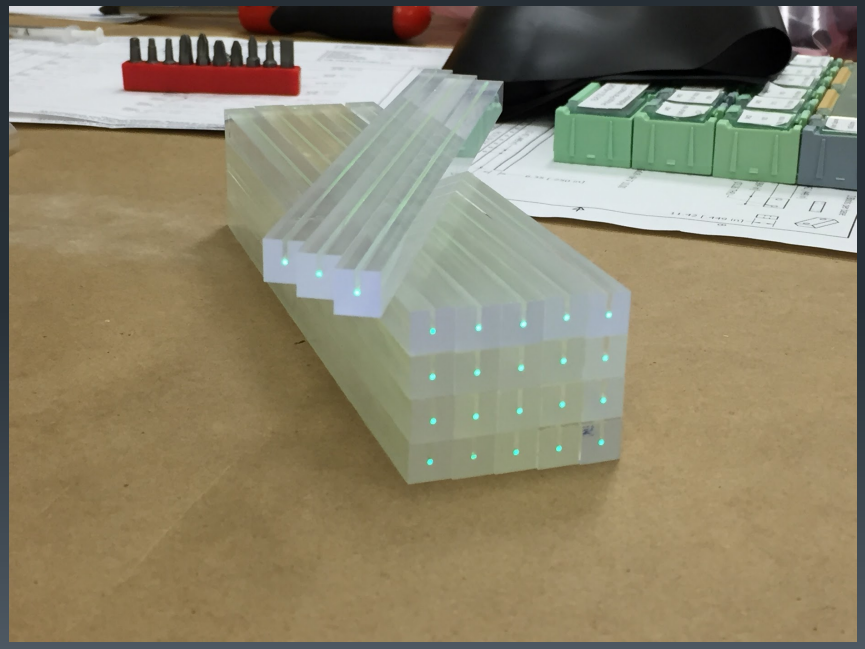
Setting up mRICH at M6 Test Beam Line

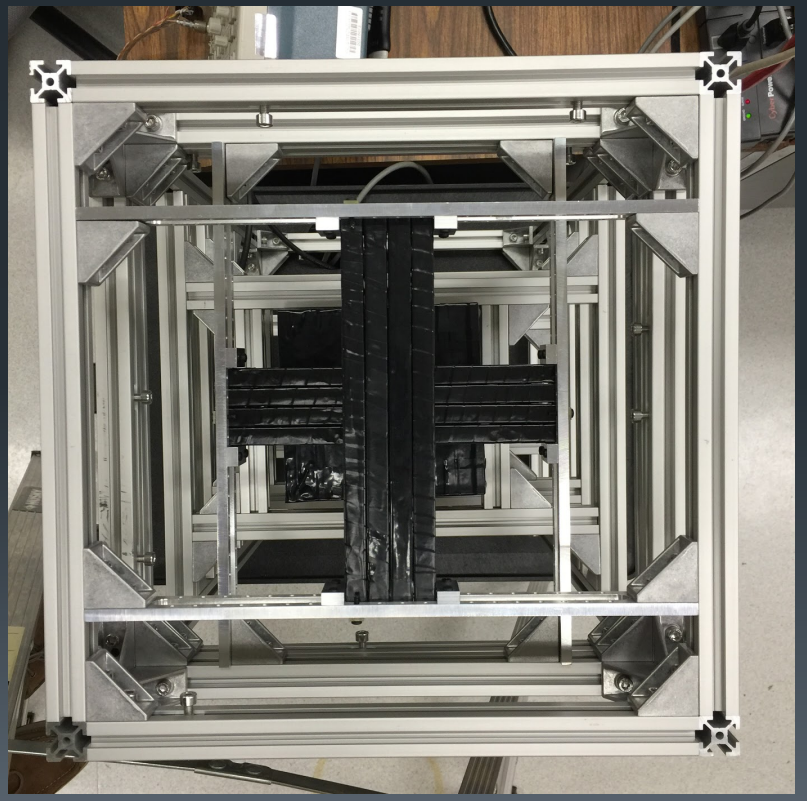




Beam Hodoscope

We made more scintillator fingers after the 1st beam test in order to completely cover the active area of the mRICH.

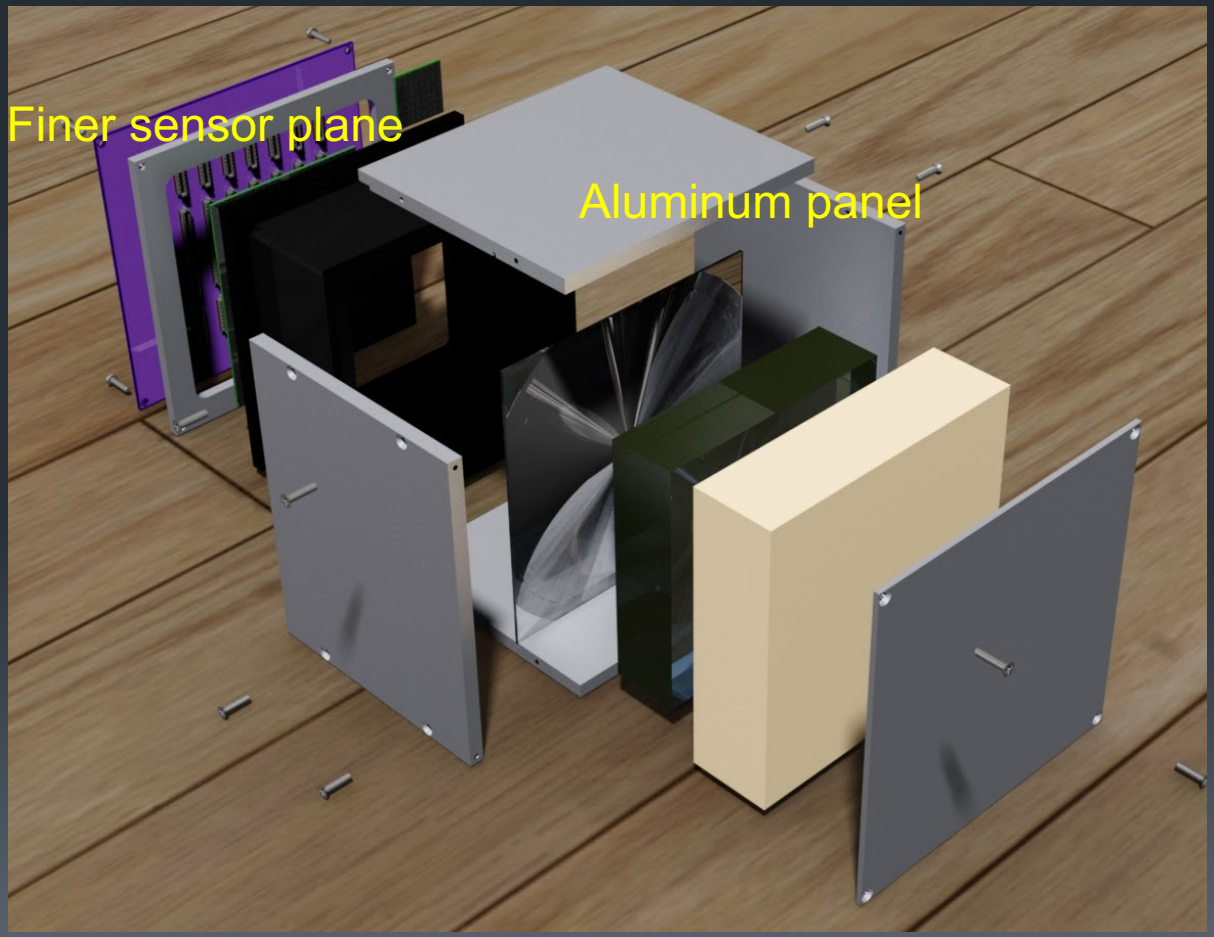




End of the 1st Beam Test on April 29, 2016

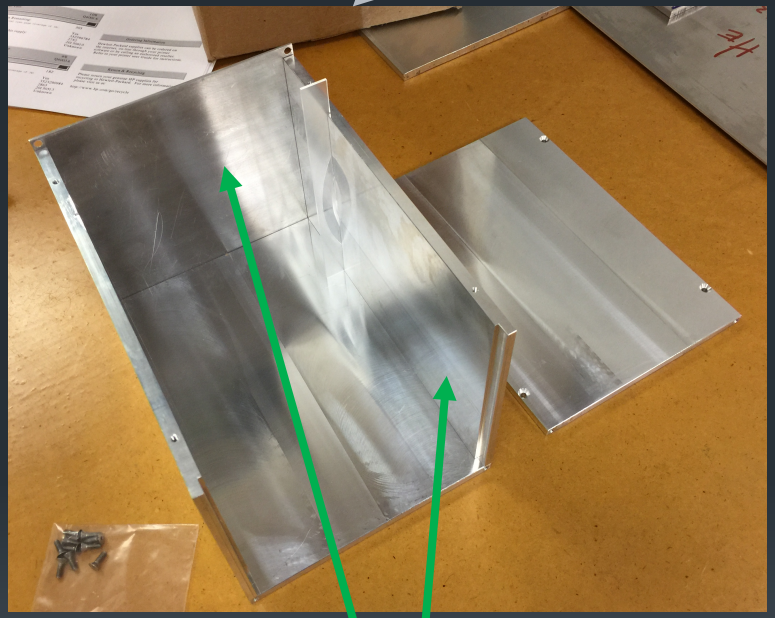
Newer Design

- Easy access to the components with removable aluminum panels for variety test configurations.
- Readout electronics will be attached to the back of the holder box in order to avoid over heating from the readout electronics – a lesson learned from the 1st prototype test.

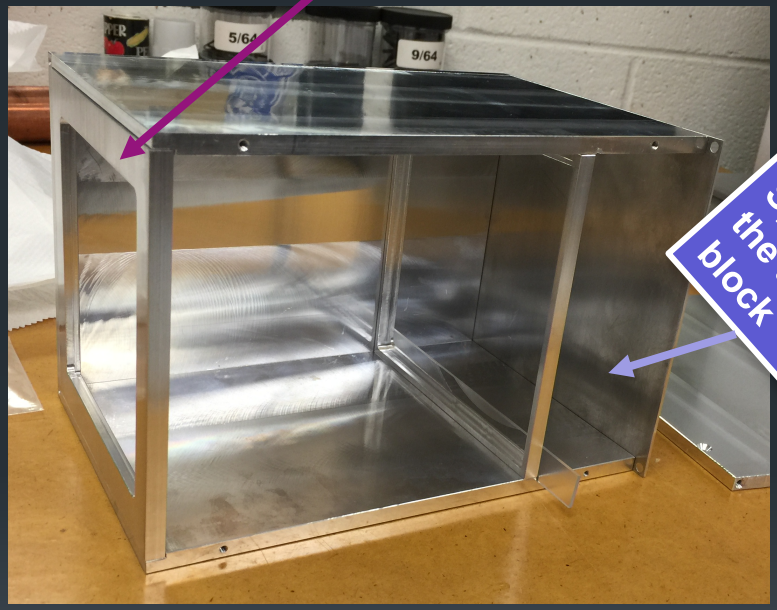


Holder Box Components

Slot for sliding the Fresnel lens in.

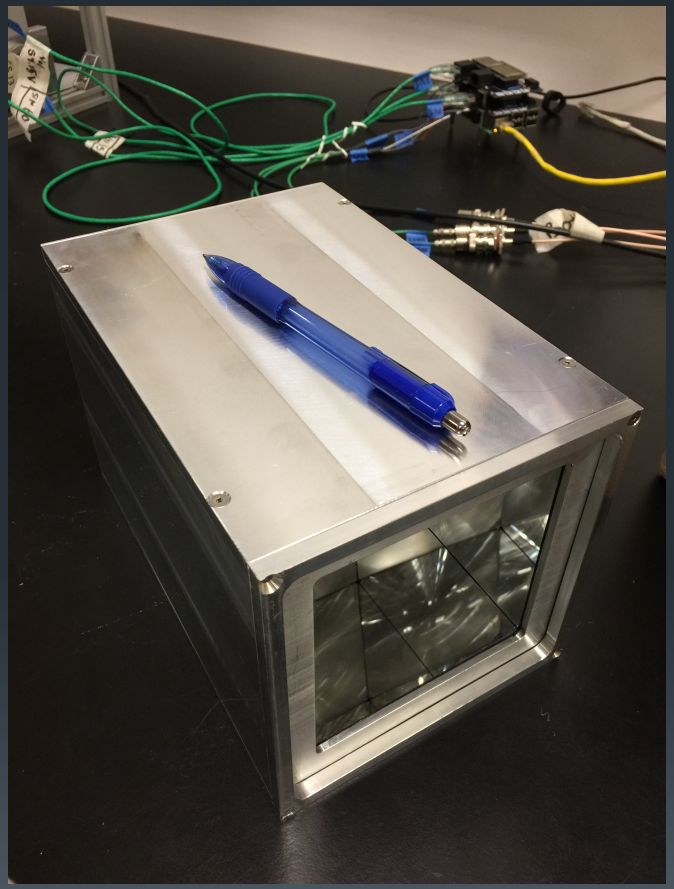


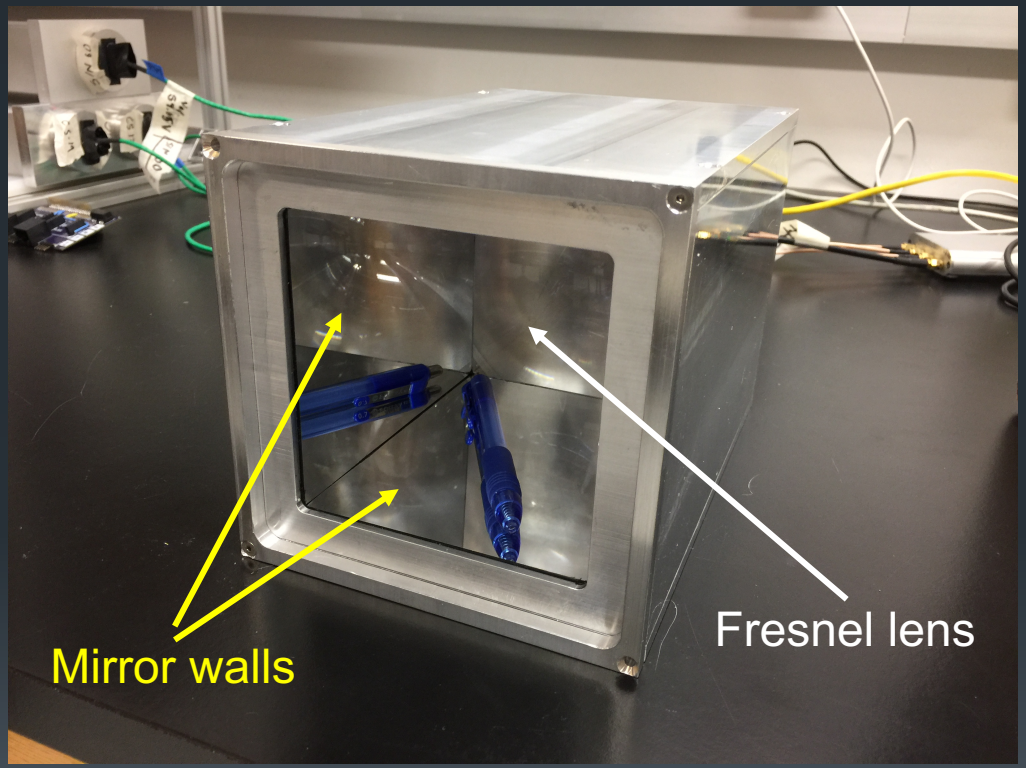
Readout electronics will be mounted on the back



(1) Components were made two weeks ago. (2) It is likely that we will either anodize or paint the inner surface the inner surface reflection.

Assembled mRICH Box





Picture taken on 4/7/2017

Readout Requirement

- We need to readout four H13700-03 PMT. Each PMT has 16x16 channels to readout. The pixel size is 3mm x 3mm.
- The total numbers of channels to read out from the four PMTs is 1024.
- The total number of hodoscope channels is 4 x 18 = 72.
- We also want to include three signals from the beam Cherenkov detectors.
- Possible synchronization with the wire chamber data for getting a couple of mm position resolution.

- If the resource is available, we also want to test SiPM array.

THANKS!