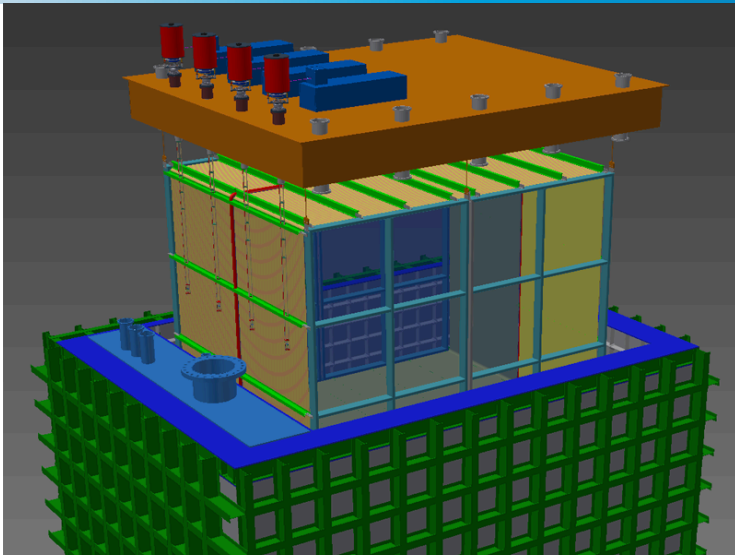


# SBND Progress

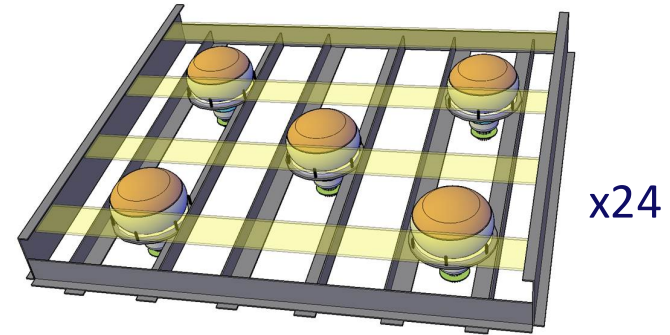
## Short-Baseline Near Detector

- *A near detector in the 3-detector SBN program*
- *A FNAL experiment T-1053 of 26 collaboration institutes*
- *Funded by DOE, NSF, UK-STFC, Swiss-NSF & LANL-LDRD*
- *Ting Miao (FNAL) – Manager/Technical Coordinator*

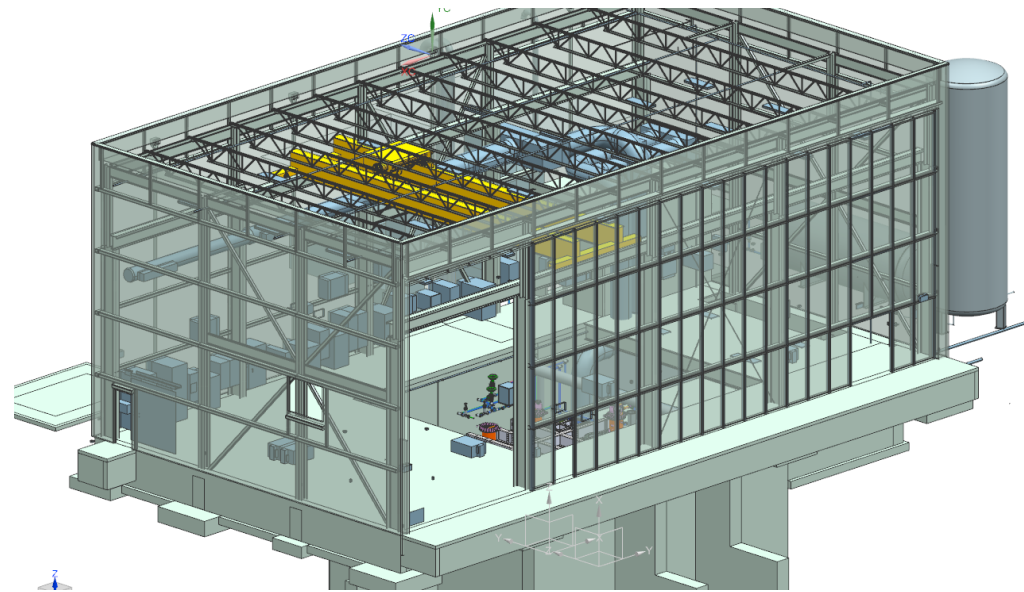
# Major Component of SBND



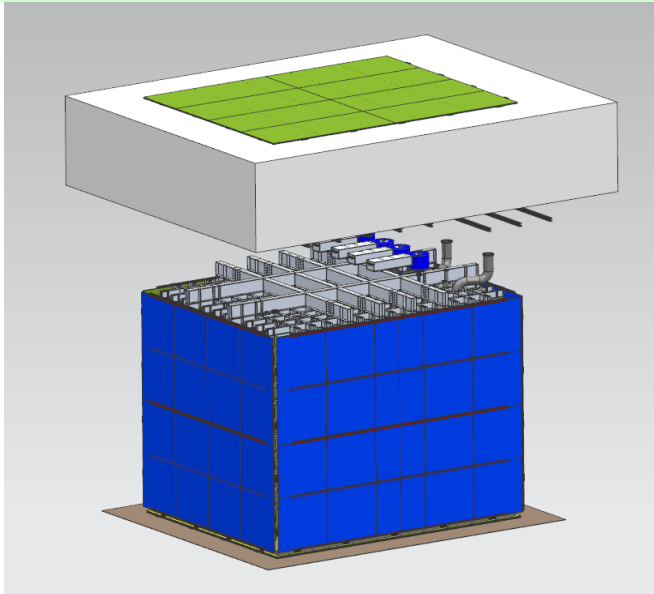
Time Projection Chamber & Cryostat



Scintillator Light Detectors



Building & Cryogenics Support

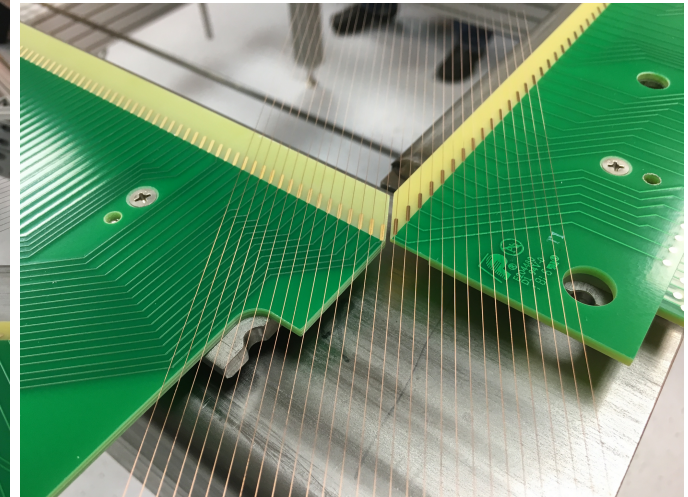
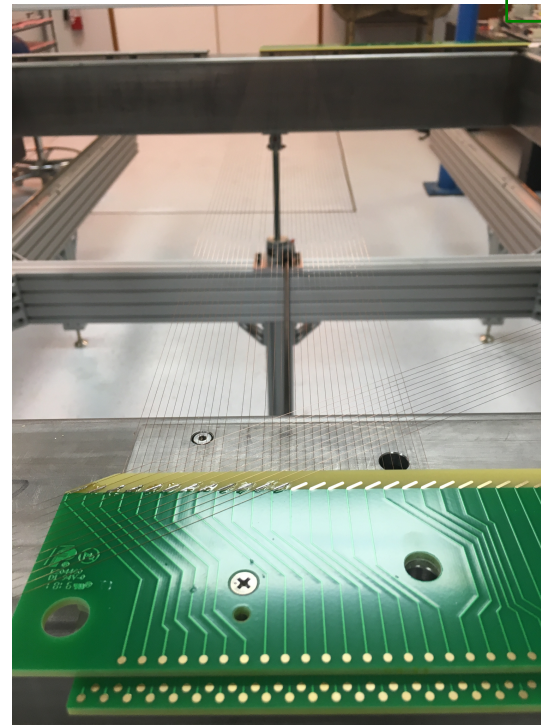
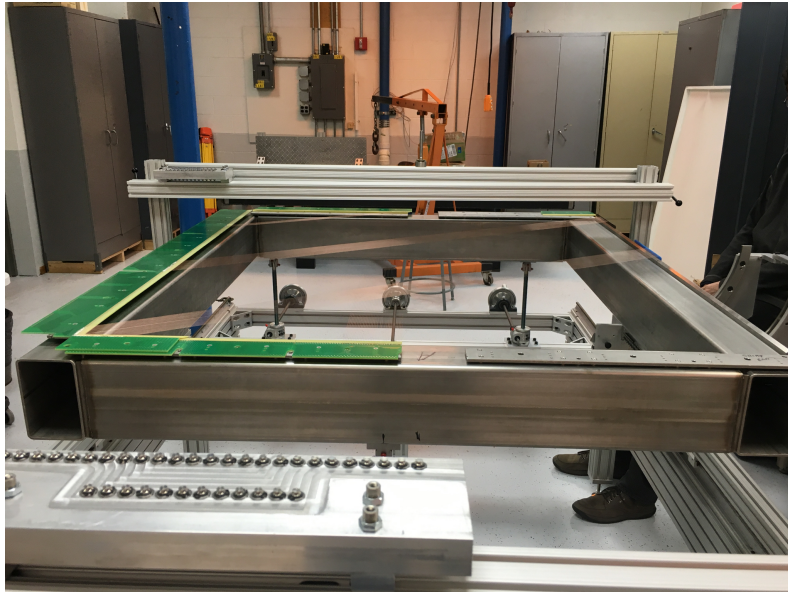
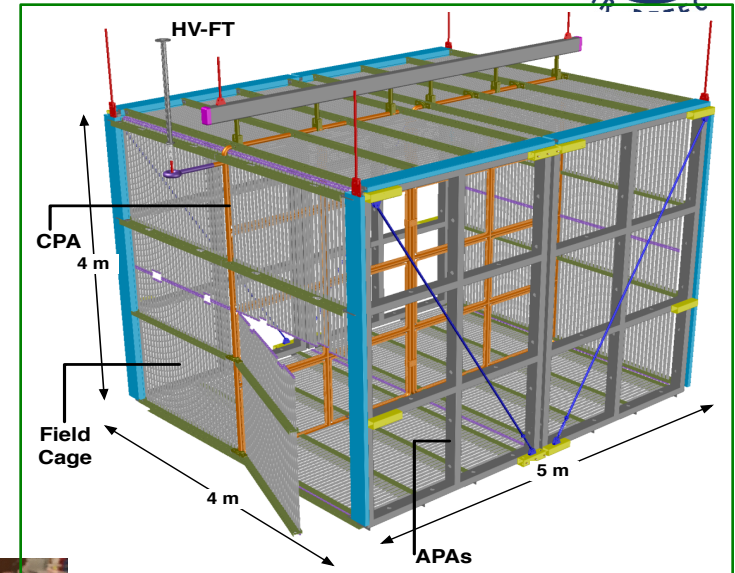


Cosmic Ray Tagger

# TPC in Final Design Stage



- APA wire frame design signed off in Feb and fabrication already in progress in UK
- Cathode & HV system reviewed June 6
- Wire-winding in prototyping – see pictures
- All components to FNAL by summer 2017

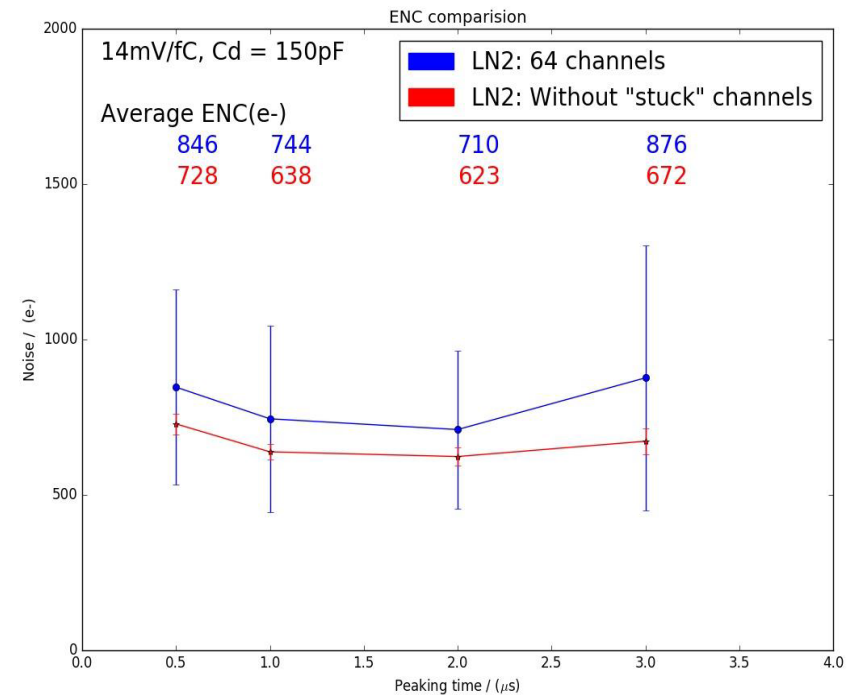


# Cold Electronics

- SBND has Front-end, ADC and FPGA ASICs in the cryostat
- FE and ADC are being redesigned after DUNE 35ton lesson
  - FE ASIC 1<sup>st</sup> prototype fabrication submitted in February
  - ADC ASIC prototype submission scheduled for June 27
- Initial round prototyping measurement shows noise level  $<700e$

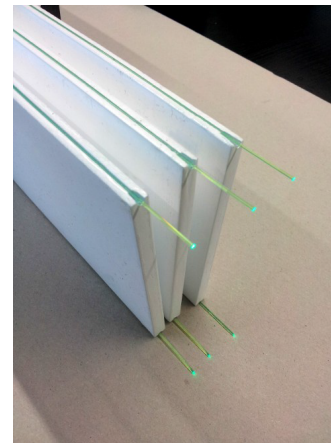
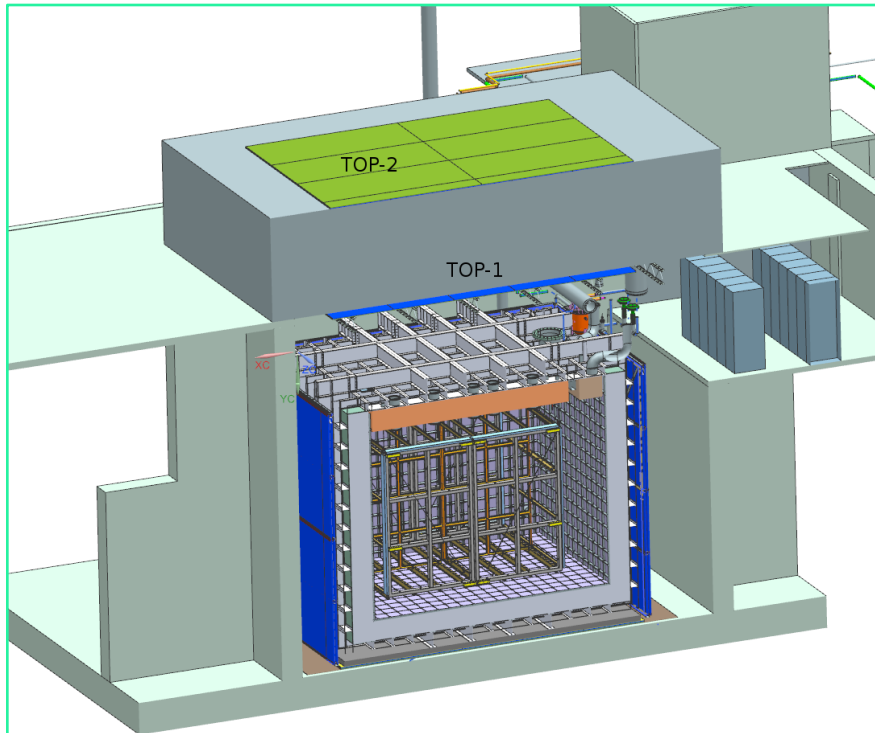


TPC Front-end Board



# Cosmic Ray Tagger

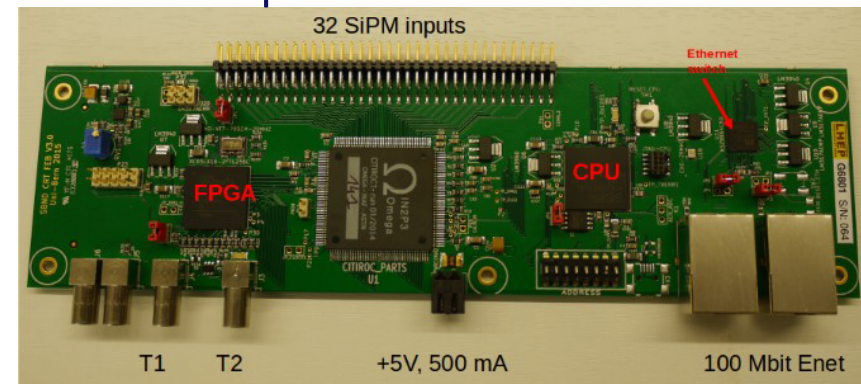
- Scintillators with fiber/siPM readout to surround TPC volume
- CRT module production in progress at University of Bern
- Bottom layer is to be installed before cryostat installation



Scintillator Strips



CRT Module



CRT FE Readout

# SBND Building



May 12, 2016



June 7, 2016



The Ufer ground impedences of the floor and walls are being carefully monitored

Fluke 1630 Ground Clamp (6-7-2016)  
N- V: .21 -.25 $\Omega$ , H: .073 $\Omega$ , H CF: .091 $\Omega$   
S- Vo: .09-.3 $\Omega$ , Vi: .103 $\Omega$ , Ho: .072 $\Omega$  Hi: .092 $\Omega$   
E- V: .27 $\Omega$ , H: .16 $\Omega$   
W- Vo: .05 $\Omega$ , Vi: .018 $\Omega$ , Ho: .073 $\Omega$ , Hi: .052 $\Omega$

Making sure all rebar steels tied together

# SBND Detector Timeline

---



- SBND to finish design by summer 2016
- Detector component fabrications by summer 2017
- Detector assembly and testing at DAB by spring 2018
- Detector transfer and installation by summer 2018
- Cryogenics and detector commissioning in late 2018