Group Introduction
Warsaw University of Technology

Marcin Ziembicki

Warsaw University of Technology and AstroCeNT

Projects – COMPASS

Scintillating fiber tracker (all but front-ends)

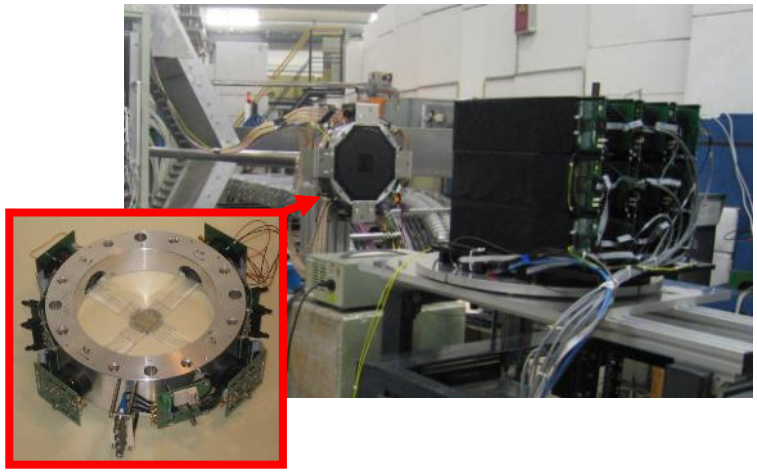
RECOIL PROTON DETECTOR

Photomultiplier HV supply optimization for timing & rate

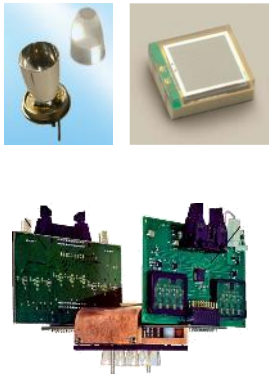
CEDAR DETECTORS

Photomultiplier, HV & front-end upgrade to handle high rate

Electromagnetic calorimeter based on Shashlyk-type modules (readout: MPPC + WLS)



- Front-end amplifiers, incl. noise optimization
- Sensor type: MAPD/MPPC
- Small SciFi for beam tests

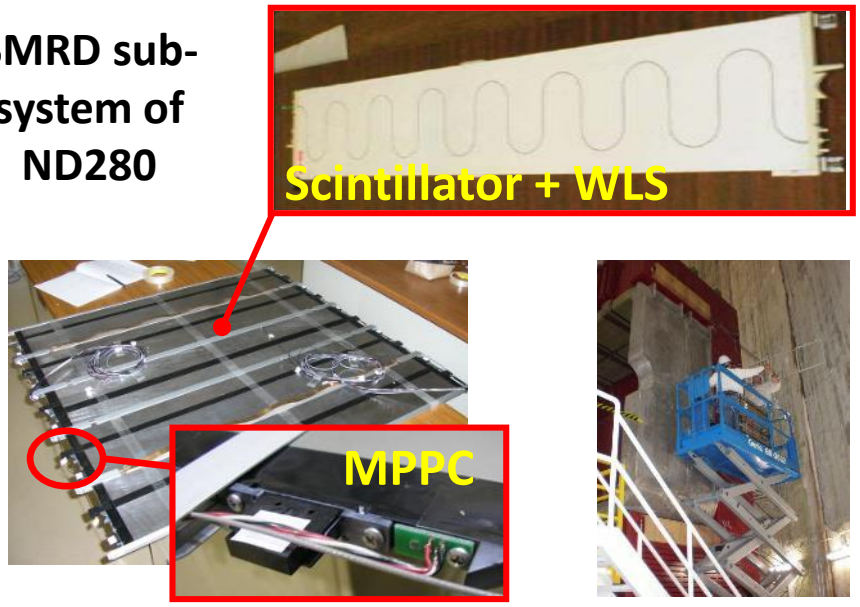


≈2000 channels

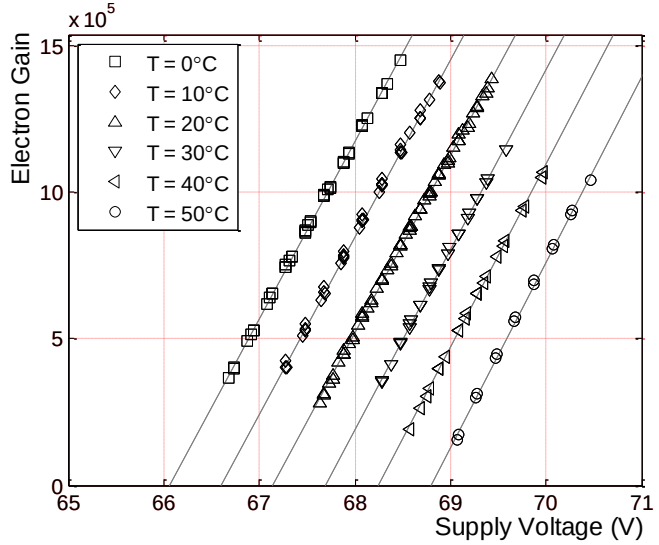
Projects – T2K

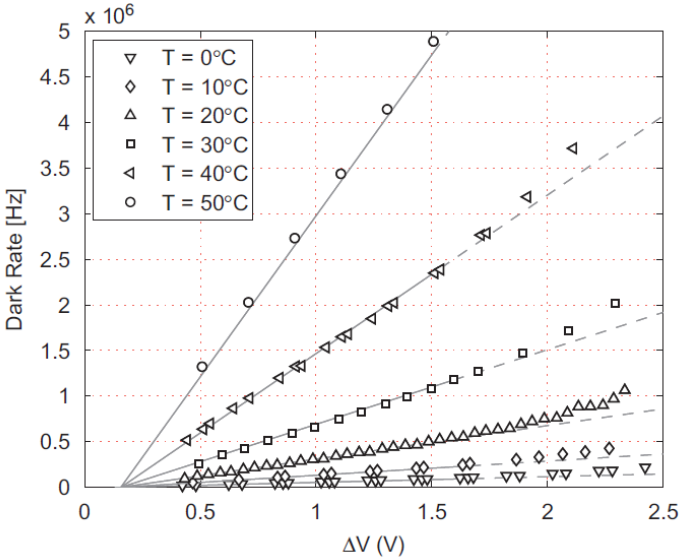
- Side Muon Range Detector for ND280
  - MPPC QA for 1200 units
  - Installation & commissioning
- Neutrino time-of-flight

SMRD sub-system of ND280



MPPC QA for SMRD (≈1200 units)



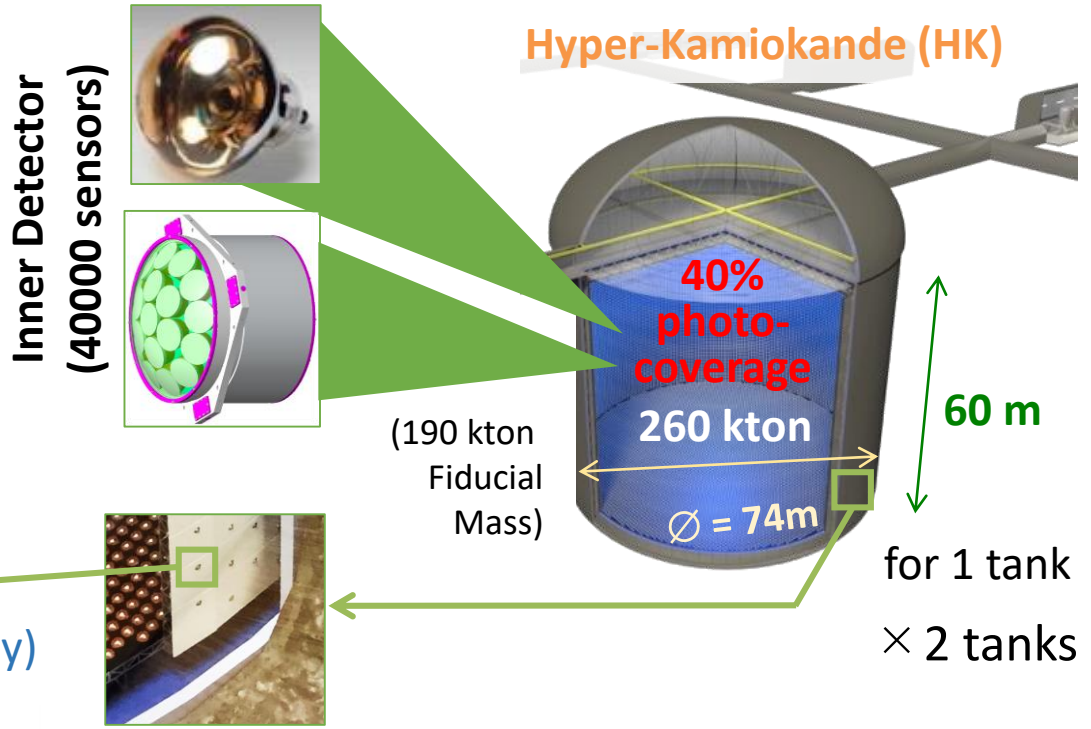


In-house development of a measurement system →

Projects – Hyper-Kamiokande/E61

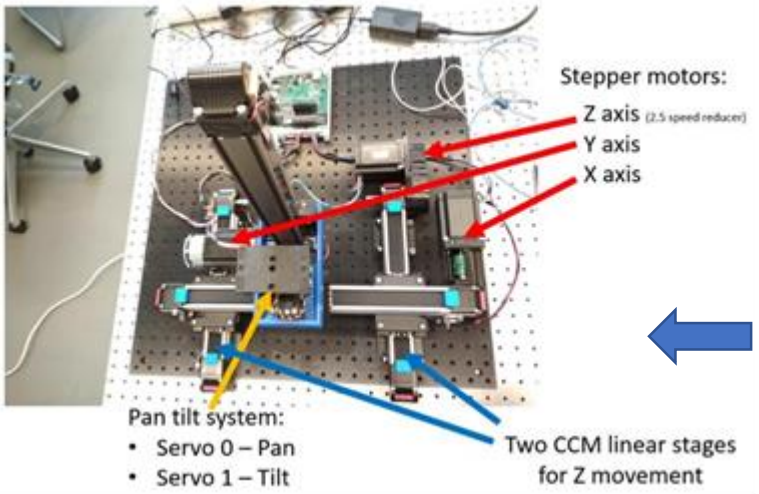
INVOLVEMENT:

- Front-end electronics
- Photosensor characterization
- Multi-PMT modules
- Data compression
- Reliability & testability (planned)



Outer Detector (6700 sensors)

8” PMTs or 3” PMTs
Potentially WLS (under study)



5-axis stand for PMT characterization

50 cm PMT for Hyper-Kamiokande

Summary

- Total of 10 people (excl. PhD students):
  - 7 with significant experience in detector technology, photosensors and front-end design (incl. FPGA firmware development)
  - 3 experienced in on-line compression techniques for video coding (incl. FPGA-based implementations)
- Intend to contribute to feature extraction and data compression for calorimetry
- Can also participate in front-end design and photosensor and/or detector characterization
- Equipment:
  - Fast scopes (max. 20 GS/s, 4 GHz), vector analyzers, HV supplies, pico-second laser (blue & UV), dark boxes, pulse generators (25 fs jitter) and more…