

# Coordinate Detector Status Update

Peter Monaghan

Taylor Edwards & Kara Ferner

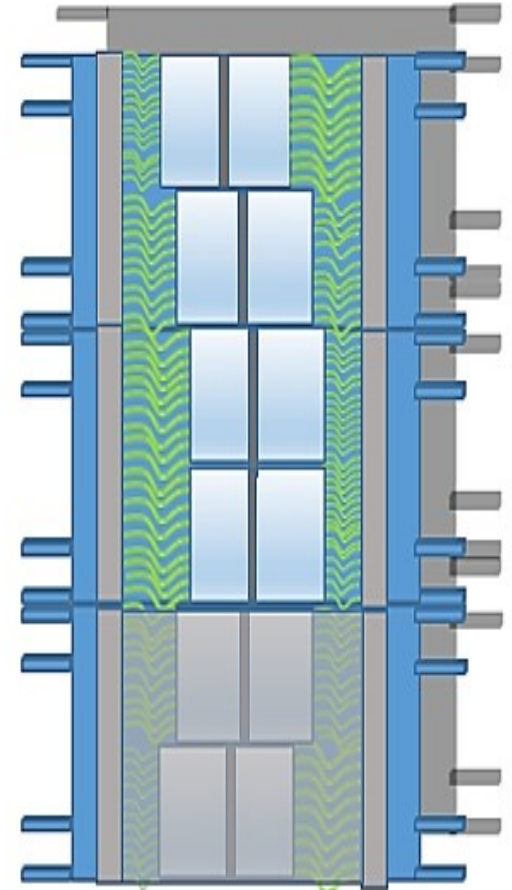
Christopher Newport University

SBS Summer Collaboration Meeting

15<sup>th</sup> July 2020

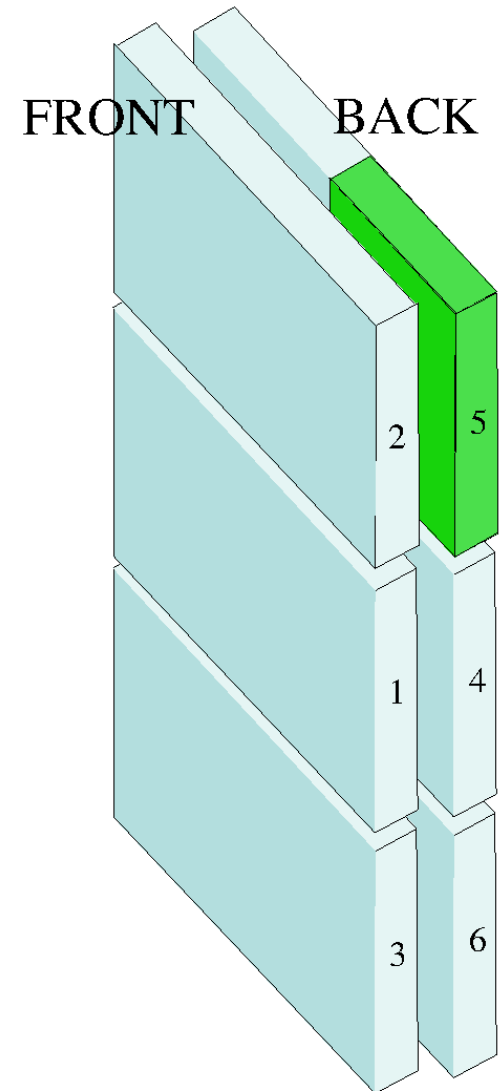
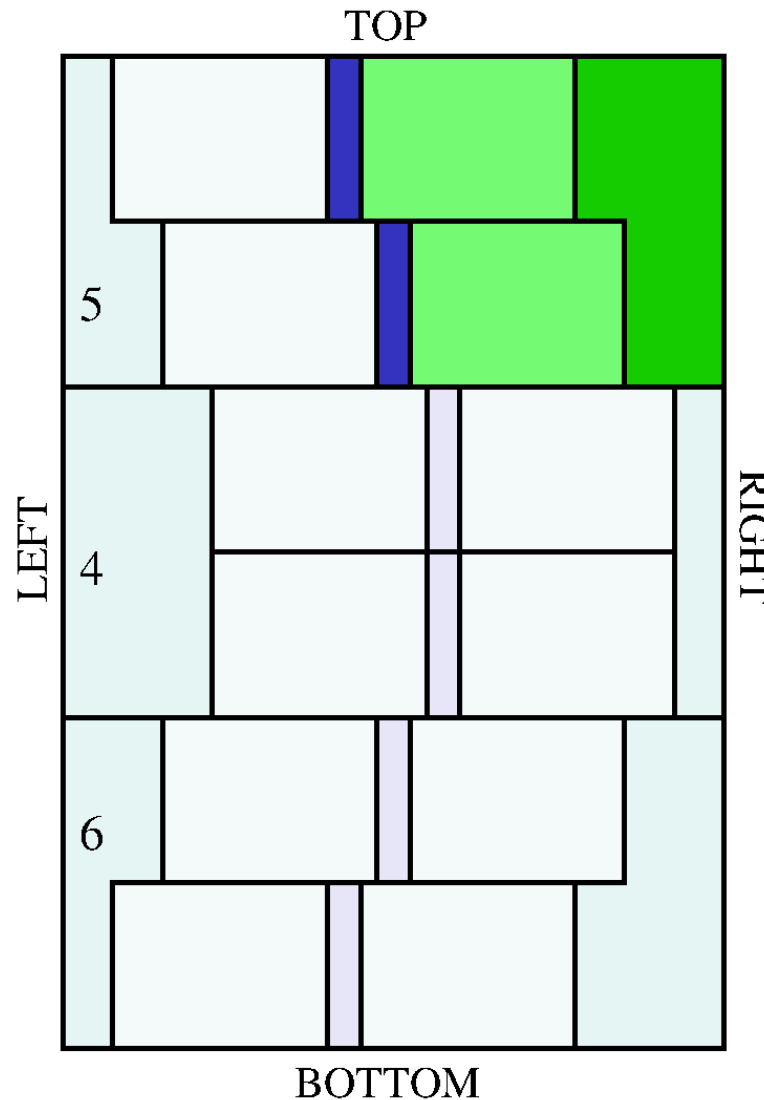
# Coordinate Detector Configuration

- Detector has two planes each with an active area of  $(102 \times 294) \text{ cm}^2$
- 6 modules; 3 per plane; 28 scintillator **groups** in each module.
- Each group consists of 14 scintillator **paddles**.
- Total of 2352 channels.
- Each paddle has a **wavelength shifting fiber** (WLS) along its center for light collection.
- Each group of WLS connected to 16-channel **maPMT**



# Coordinate Detector Configuration

- Left/Right split by mirror.
- Acceptance matched for  $G_E^p$ .
- Paddles angular spread  $\pm 17^\circ$

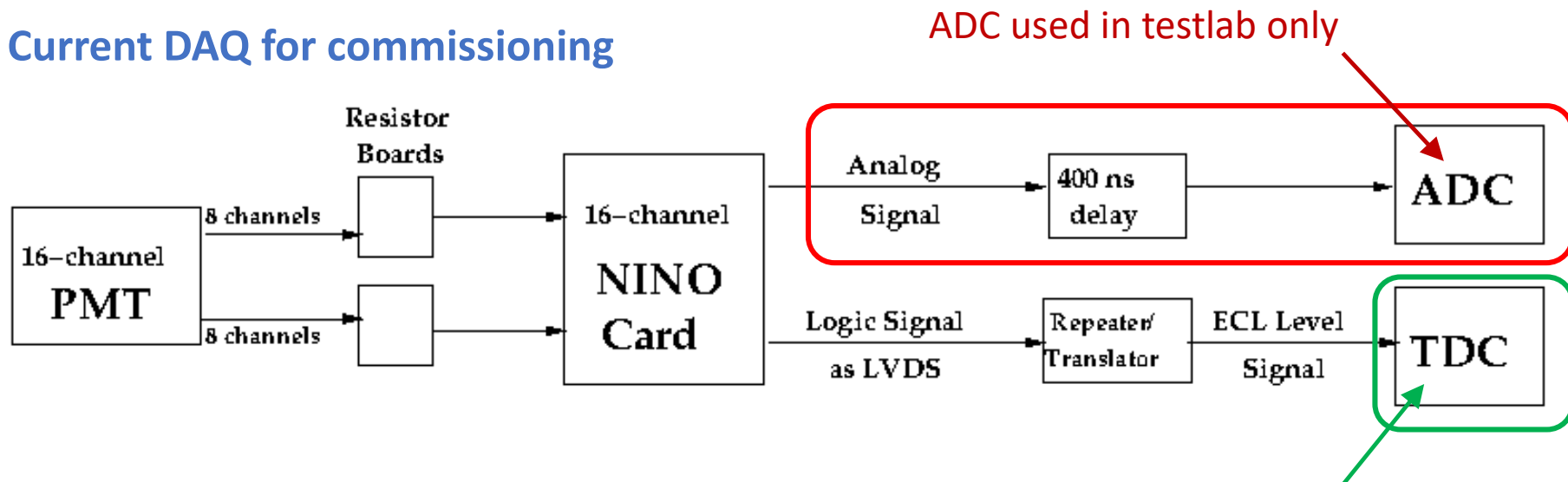


# Module Commissioning Progress

		Light-tightness	Charge normalised	Threshold	Efficiency & HV	Complete
Module 1	RIGHT	✓	✓	✓	✓	✓
	LEFT	✓	✓	✓	✓	✓
Module 2	RIGHT	✓	✓	✓	✓	✓
	LEFT	✓	✓	✓	✓	✓
Module 3	RIGHT	✓	✓	✓	✓	✓
	LEFT	✓	x	x	x	x
Module 5	RIGHT	✓	✓	✓	✓	✓
	LEFT	✓	x	x	x	x

# DAQ: Fastbus → VETROC

## Current DAQ for commissioning

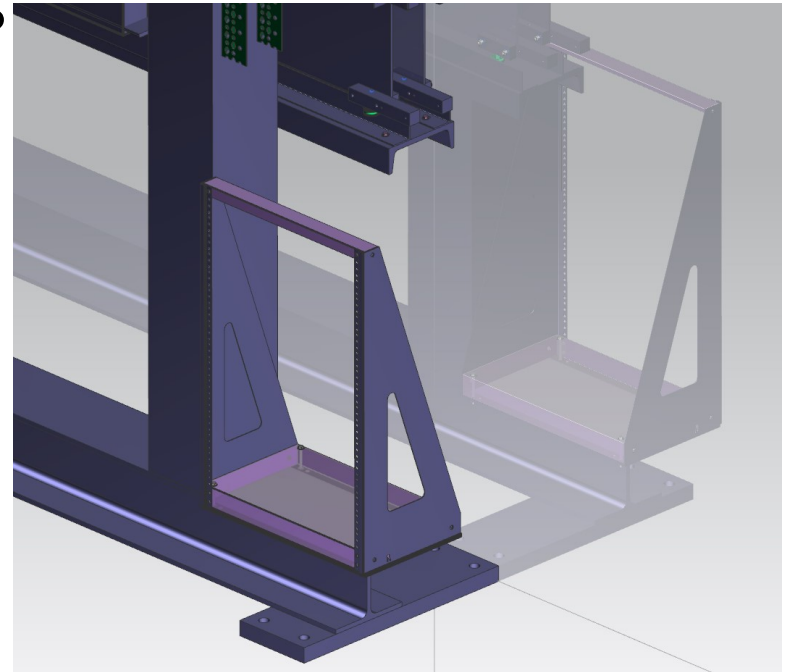


- David Flay leading effort.
- VETROC TDCs capable of higher data rates.
- Fewer modules required for **less** deadtime.
- 15 modules to be purchased.

Replace Fastbus with  
VETROC modules

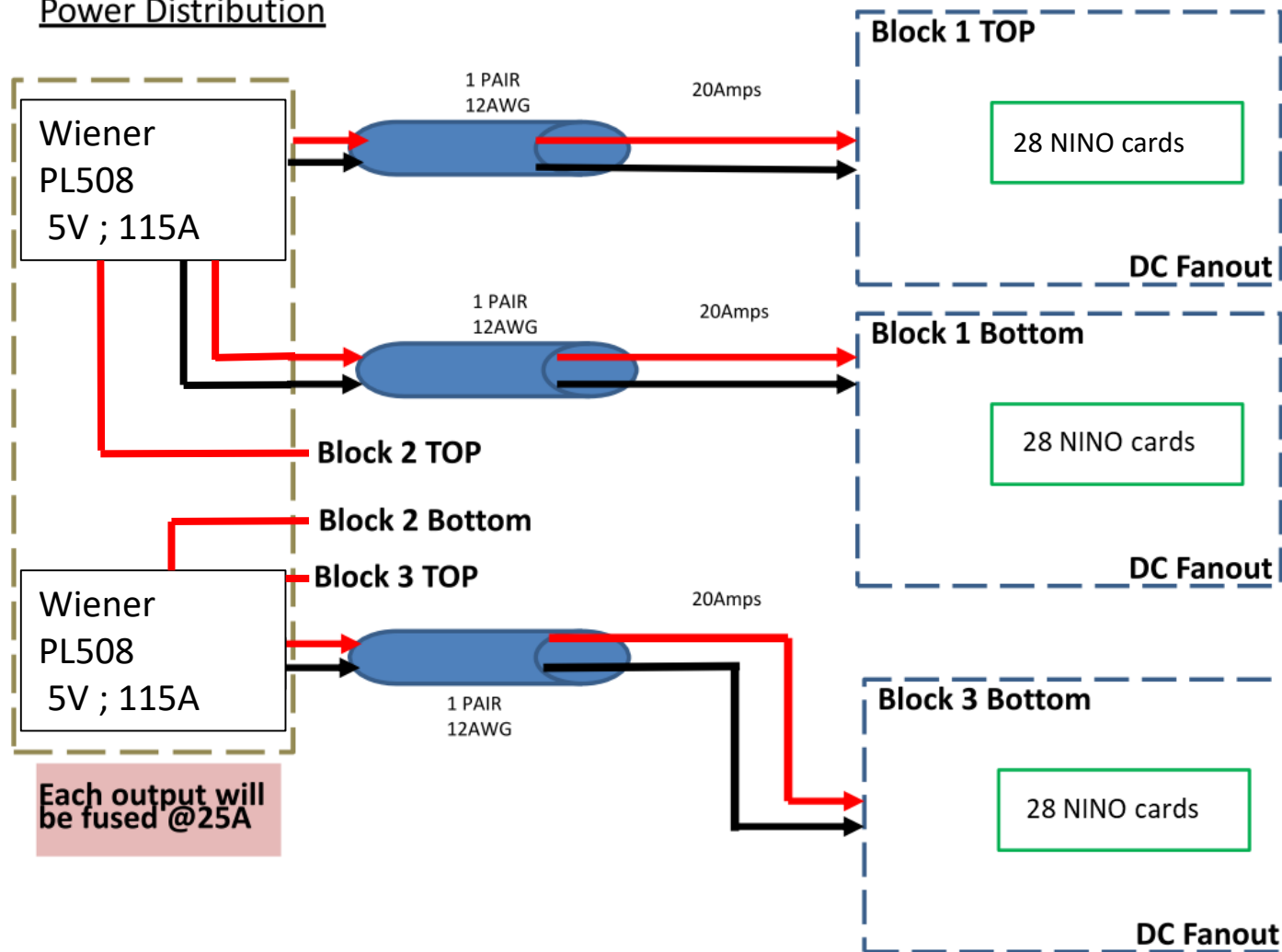
# NINO Card Power Supply

- Each NINO card requires 5 V and  $\sim 1.5$  A supply.
- Working with Fast Electronics Group
- Wiener PL508S modules
  - 115 A at 5 V
  - Low noise
  - Interlocked settings
- Require fuse board
  - Mount on rack
- Purchase fuses/cabling



# NINO Card Power Supply

## SBS Scintillation Detector NINO DC Power Distribution



# Documentation Updates

- Draft reports for each commissioned module being prepared.
  - Good experience for students!
- NIM article draft started
  - Authors need to opt IN!
  - If you wish to contribute, please let me know!
- Wiki pages being updated.
- Safety/Experiment required documentation
  - Guidance needed.



# Tasks and Requirements

- Engineering support
  - Work on how to connect and mount the modules
- Technical staff support
  - Test mount three modules in test lab
  - Considering ideas on the **process** of hanging the modules.
- Considering how to mount/route all cabling on the frame/detector as well.
- Need to know **where** DAQ, power supplies and converters are going to be in the hall!

# Summary

- Commissioning all modules
  - Hindered due to Covid-19
- Development of DAQ using VETROC system
  - In progress; David Flay and CNU students
- NINO power supply system
  - In development with Chris Cuevas (Fast Electronics Group)
- Considering installation procedures.
- Purchasing: connectors, cables, boards
- Need power distribution boards for NINOs