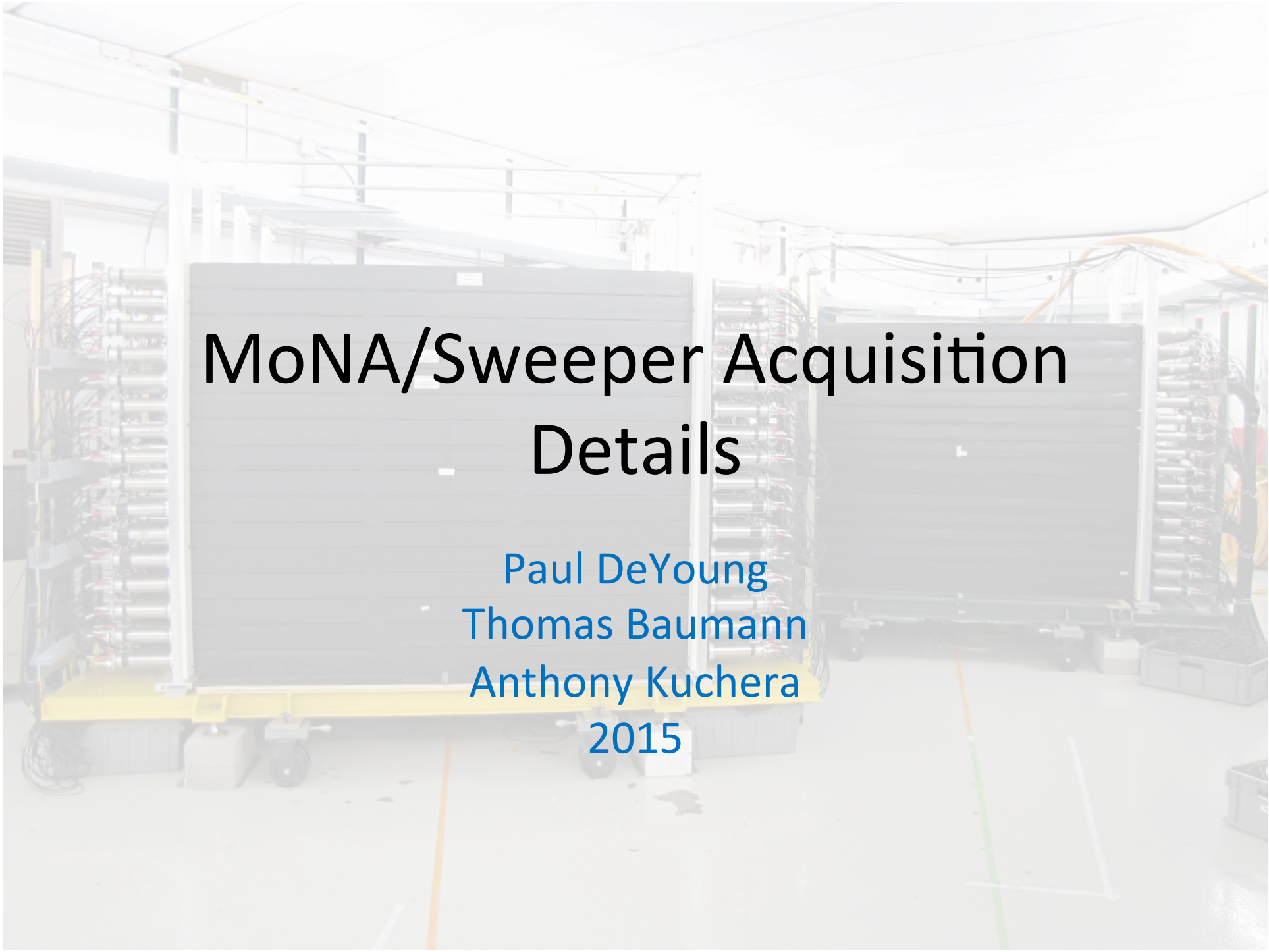

MoNA/Sweeper Acquisition Details

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MoNA/LISA/Sweeper Device

- Neutrons detected in 288 scintillating bars with pmt at each end; anode for time, dynode for energy
- Charged particle with 2 CRDCs, segmented IC, thin scintillator, 25 element CsI hodoscope after 4T dipole
- Beam detectors; two timing scintillators and two tracking detectors (crdc or ppac)
- Segmented target under development

Trigger Strategy and Timing

- Limited options including reading all detectors if there is 1) a charged fragment, or 2) requiring a coincident neutron, or 3) trigger on every beam particle (low rate only)
- Subsystems can self trigger for diagnostics
- Trigger disseminated to subsystem within 600 ns

Readout Strategy

- 3 separate readout computers (spdaqs); MoNA, LISA, Sweeper
- MoNA and LISA spdaqs read 3 VME crates each
- Pulser-tagged events for off-line reassembly
- Standard packet structured evt files merged into root file

Data and Event Rates

- Typical event rates are 10 to 3000 per second
- Data rates are of the order of 200 to 2000 MB/hour

Merging Accelerator Controls

- Currently BARNEY information is archived but not within the data files (i.e. Not interspersed with events)
- Diagnostic scalers are written to the event stream every 2 s.

Coupling to Other Detector Systems

- Currently; signals from Sweeper detectors generate a trigger that is distributed to subsystems and subsystems return a busy to the master FPGA logic. Time tagging is used to reassemble events.
- Future; likely still a trigger from the Sweeper but if fully DDAS, the busy concept will be reduced. Time tagging will still be used.

Data Volumes

- Currently; Experimental data files require 100 to 600 GB per experiment
- Future; unclear as we learn about DDAS but estimated at a few TB

On-Line Analysis

- Currently; Each subsystem is expected to be able to monitor performance. Hourly, evt files are merged and overall performance is checked. Calibrations and preliminary results are done as data is accumulated.
- Future; Real-time reassembly of events would be nice but not critical

Off-Line Analysis

- Done with ROOT, GEANT, and Monte Carlo simulations
- Requires another 100-700 GB
- Simulation requires 500-1000 GB