

# Detectors and DAQ

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# MICE Detectors

- Variety of detectors used in MICE:
  - TOF, CKOV and KL all use PMTs
    - Readout using CAEN ADC and TDC cards
  - EMR uses PMT and MAPMT:
    - Readout using CAEN ADC and custom electronics
  - Tracker uses VLPC:
    - Readout using custom electronics from Dzero
  - Luminosity Monitor:
    - Readout using CAEN scalers.
- All detectors integrated for Step IV:
  - Nothing new to add,
  - Stable configuration from beginning of step IV.
- Occasional hardware fault (last year), but in good shape

# MICE Trigger

- The MICE Trigger system was written by Yordan
- Last major modifications were to accommodate Tracker at the beginning of step IV
- Development version exists to use a pre scaled triggers
  - Has bugs, which require beam to diagnose
  - Motivation for debugging is low
- Will Continue to run the 'tried and tested' trigger for the remainder of Step IV

# DATE

- MICE uses DATE developed by the ALICE collaboration in order to synchronise the readout processors
- Last major change was to migrate to the latest version of DATE at the start of Step IV
  - This resulted in a change of unpacking
- Again, we will continue with the current version until the end of Step IV

# equipmentlist-mice

- The equipment list contains the specific code to readout the MICE detectors
- Current version available at:  
<https://github.com/mlcr-online/equipmentlist-mice>
- Again, this has been very little development on this because there was no need

# Computing

- Readout computers:
  - Miceacq14: TOF
  - Miceacq15: KL, CKOV
  - Miceacq16: Tracker US
  - Miceacq17: Tracker DS
  - Miceacq20: EMR
  - Miceacq18,19: Spare
- Storage: Miceraid5:
  - Data is stored here
  - Occasionally needs cleaning out (one of the recurring problems).
  - Durga has a script which helps automate the process:
    - Not fully automatic since one should be careful deleting data.
    - Cleaned out after last running, now has 1TB of free space
- All computers were installed just prior to Step IV,
  - Server class: Main components should be robust
  - Ageing hard drives

# Summary

- **Going strong and quite stable**

- Key systems have been stable during step IV
- Plan is to keep things stable for the rest of step IV
- Most major problem will be diagnosing any issues which arise (from failed equipment).
  - Not a common occurrence, although electronics equipment is getting old.