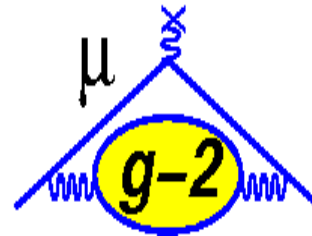


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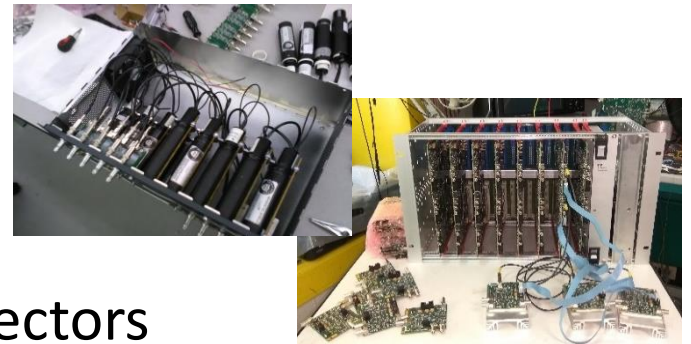
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WP3: Muon $g-2$ Calibration System Update

D. Cauz, C. Ferrari
MUSE Scientific Board Meeting
Sept 14th 2018

Laser shutdown Activities

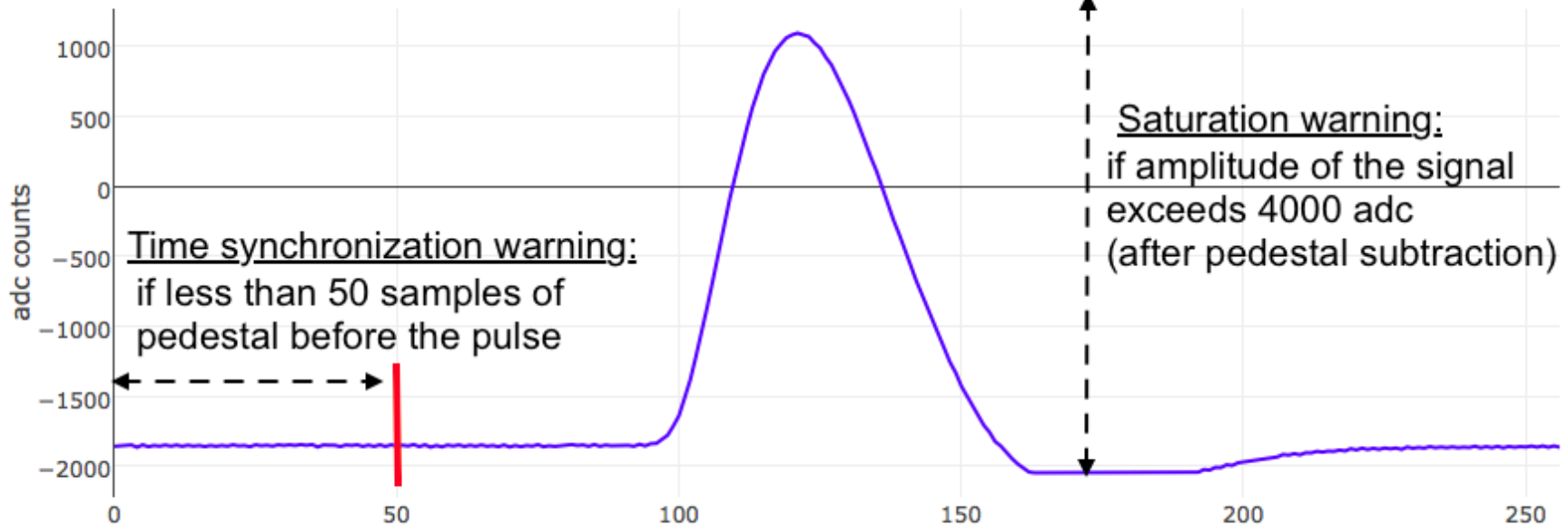
- **Source Monitor updates**
 - Update HW/firmware Na electronic boards
 - Separation signals PMT/PD
 - Some test of the asynchronous acquisition mode
- **Local Monitor updates**
 - New 24 PMTs
 - Installation of the Na crate
- **Other:**
 - Laser pulses to the Fiber Harp detectors
 - Laser pulses synchronisation studies
 - New server for the slow control of the laser system
 - Local monitor stability studies (ongoing)
 - Cooling of the laser hut (ongoing)
 - Prescale CCC trigger to the laser control board (to be done)
 - Analysis (next meeting)



Online Data Quality Monitor

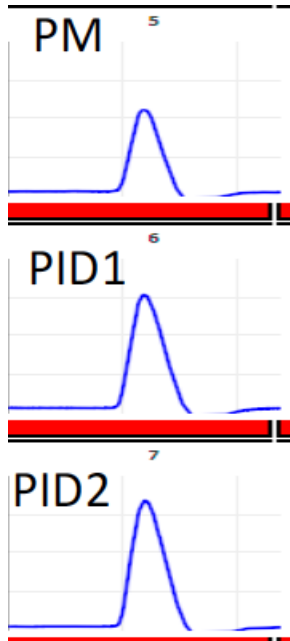
Now DQM Laser Monitors software (ART SIDE)
checks the quality of laser traces collected by DAQ

Example of warning conditions for pulses

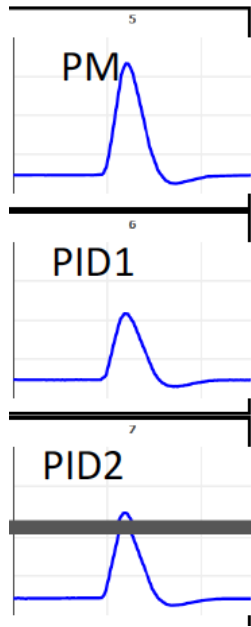


Update HW source monitor

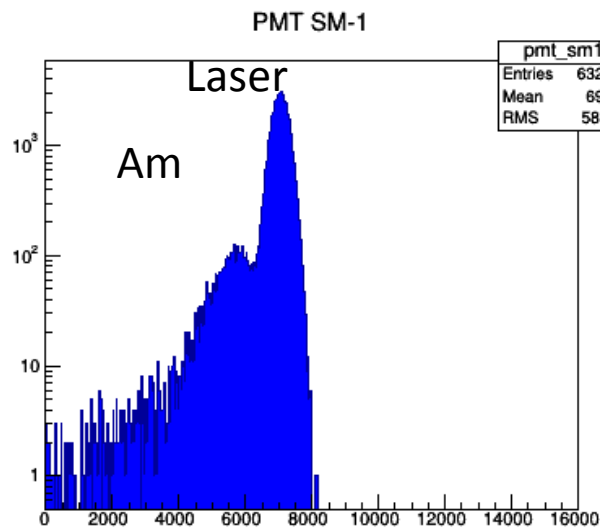
Before



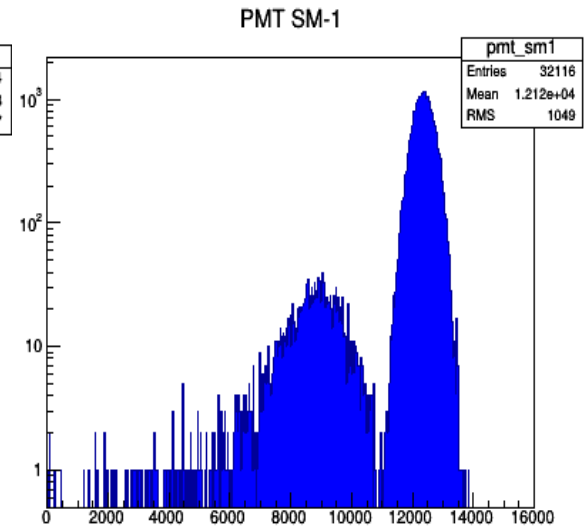
Now



Before



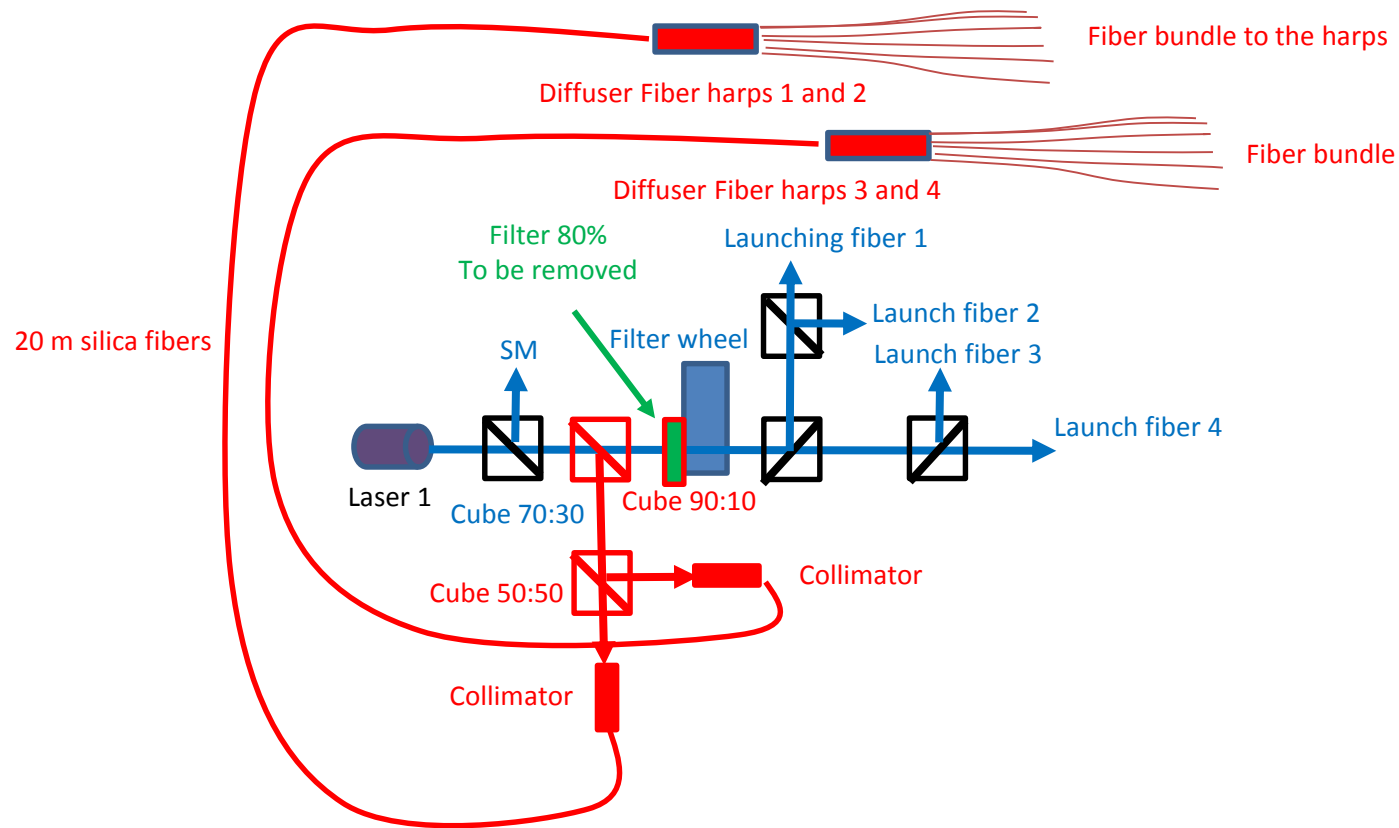
Now



- PID saturation fixed
- Overlapping of asynchronous (Am) and synchronous (laser) signals fixed
- Asynchronous acquisition mode now available

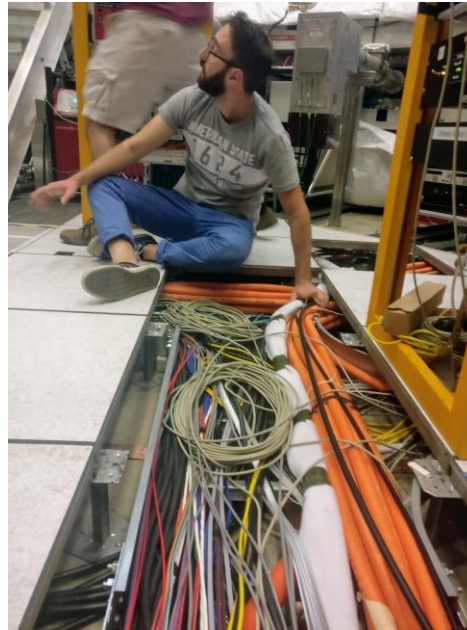
Laser pulses to the Fiber Harps

Red components are the new ones, green component is the old one to be removed

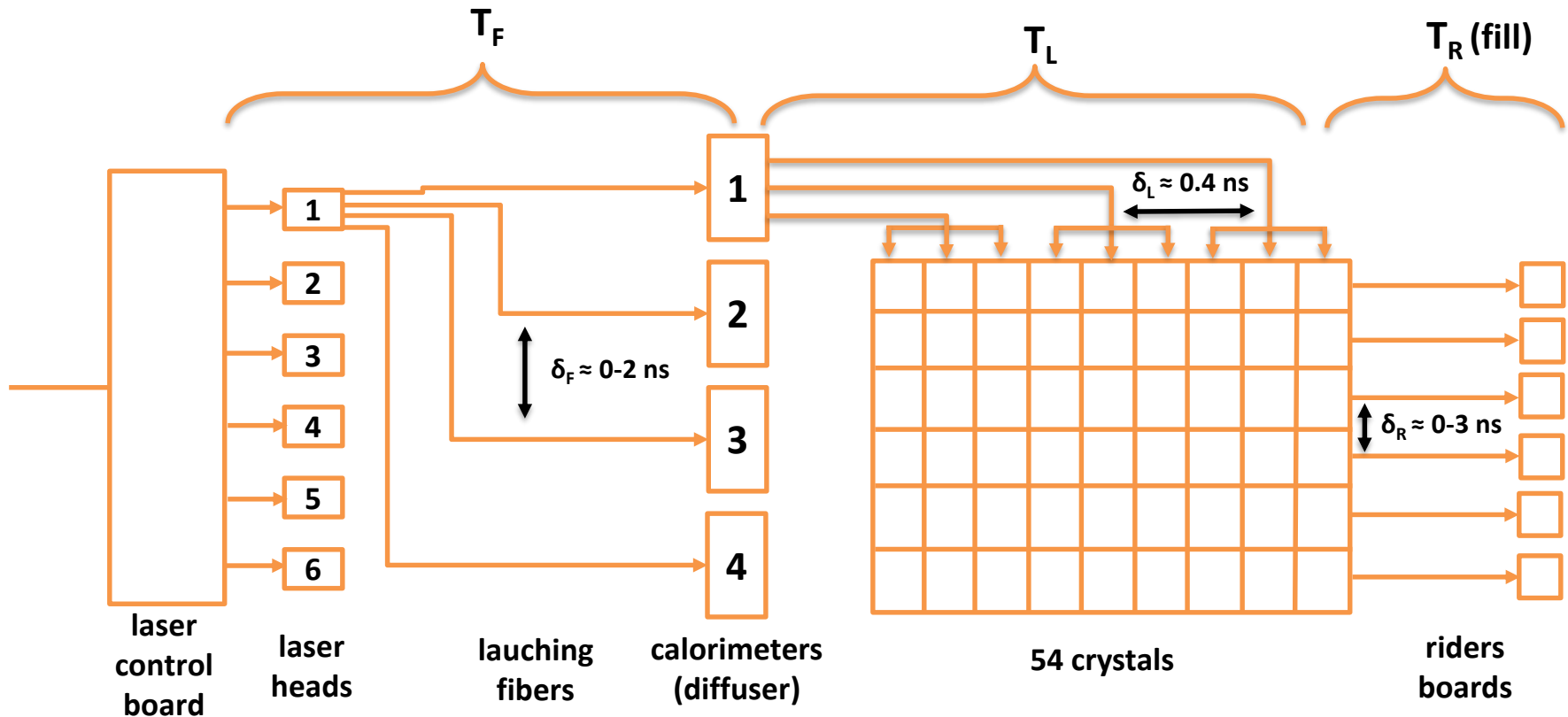


Laser pulses to the Fiber Harps

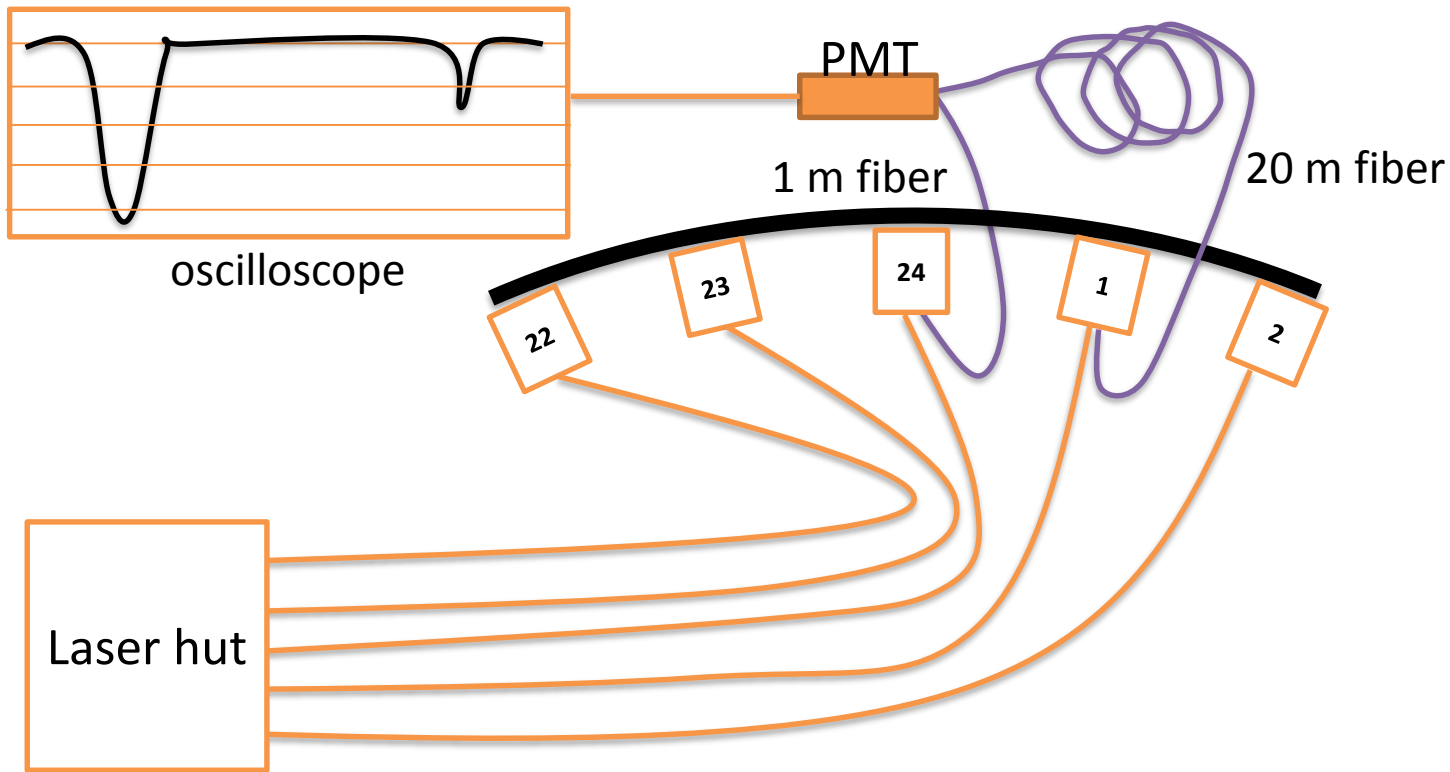
- Installation of the optics and the two new optical fibers



Laser pulses synchronisation

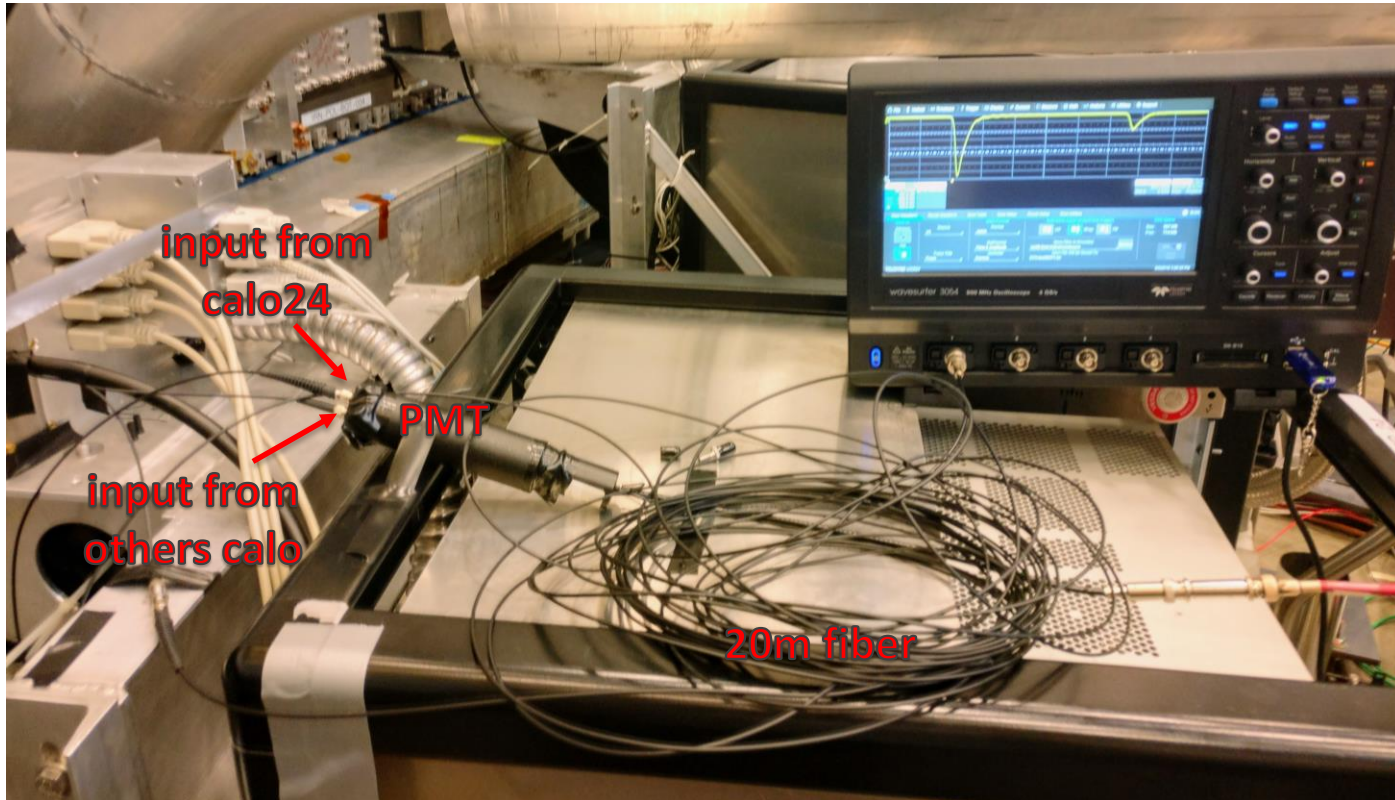


Hardware measurement of δ_F

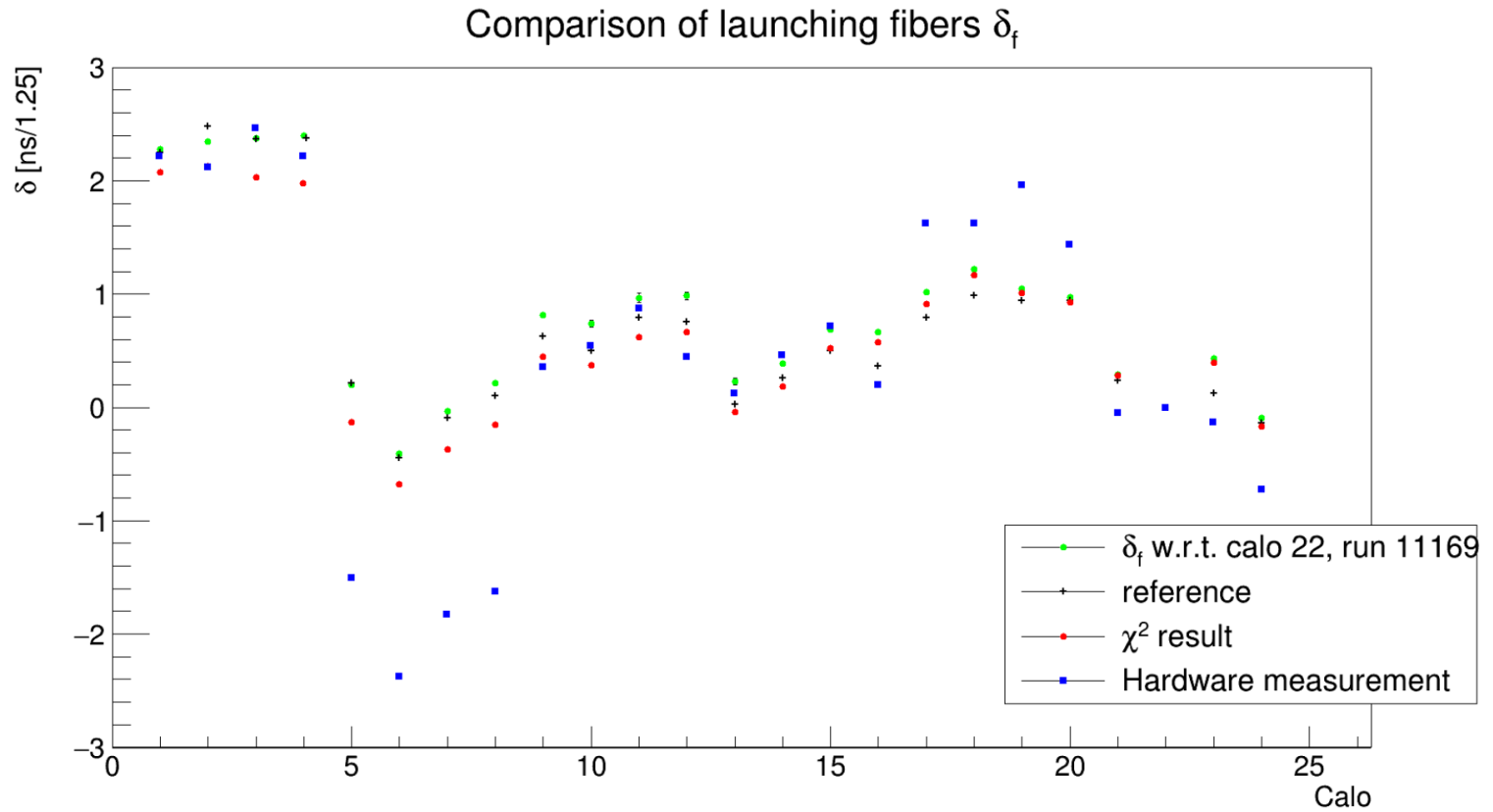


- To get the hardware delay between calorimeters we send two pulses from two calorimeters through two fibers of different length.

Hardware measurement of δ_F



Results



Laser delay monitor



Conclusion

- Laser system updated and working.