

# Development of a Coincidence Measurement System for Scattered and Decay Particles Using a Streaming DAQ and Digitizers

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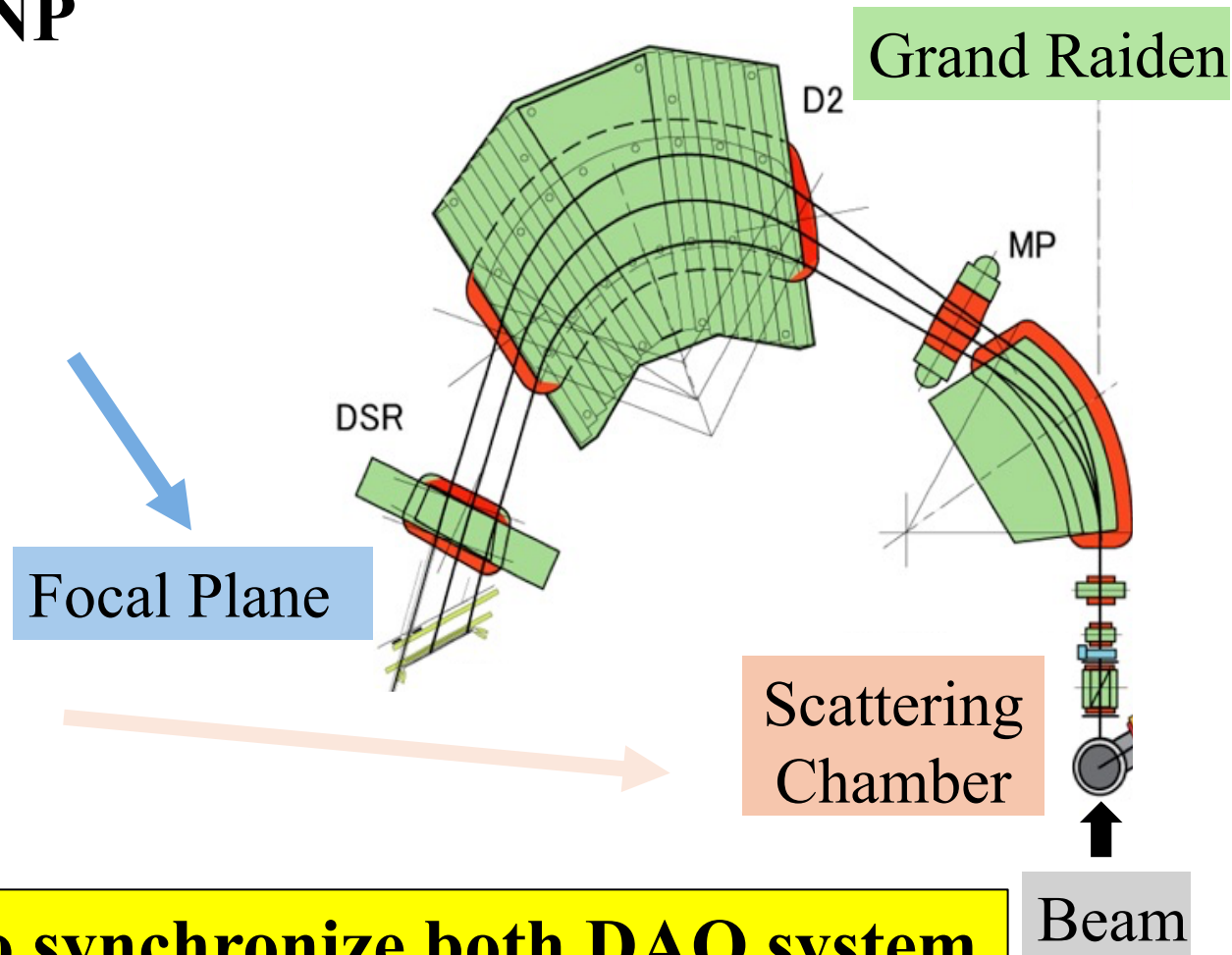
## Requirement @Grand Raiden at RCNP

Drift Chamber and Plastic Scintillator

- AMANEQ (streaming TDC)
- **Streaming DAQ**
- Measure Scattering Particle
- Define Excitation Energy

Silicon Detector

- V1730SB (waveform digitizer)
- **Triggered DAQ**
- Measure Decay Particle
- Pulse Shape Analysis



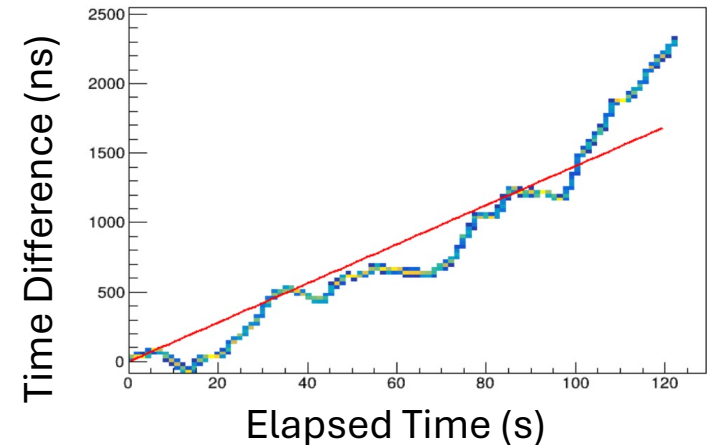
**Development the coincidence method to synchronize both DAQ system**

# Synchronization Methods

1. The focal plane detector generates a trigger to prompt the silicon detector
2. Timestamp are generated within each DAQ System by using the individual internal clocks of the AMANEQ and V1730SB
3. Reconstruct events using timestamp

## Issue: Timestamp Drift between DAQs

- Frequency Difference:  $\sim 490$  ppm
- Fluctuation: Several  $\mu\text{s}$



## In the Poster Session

- ✓ Event Synchronization Algorithm Under clock Drift
- ✓ Evaluation of the whole DAQ System