Existing and planned auxiliary devices – outcome of questionnaire

16 responses, 14 of which dealing with a certain detector or spectrometer/separator

The remaining 2 deal with general considerations

Going to group these instruments in such for fast-beam and slow-beam experiments

September 2017 Questionnaire with 8 Questions

1. Name and type of detector (e.g. CHICO2 and PPAC)
2. Status (available or planned?)
3. Reference if applicable (e.g. NIM paper)
4. One to three typical reactions for the detector (e.g. multi-step Coulex, deep-inelastic collisions)
5. Usage in slow-beam or fast-beam experiments
6. Scheme for readout if applicable (e.g. separate or GRETINA/GRETA digitizers, separate DAQ or GRETINA/GRETA DAQ)
7. Trigger requirements if applicable (e.g. early trigger for GRETA-Aux. Detector overlap coincidence)
8. Additional comment if needed

Existing and planned auxiliary devices - overview

Instrument (Mentor)	Type and principle application	Status
HRS, S800 (Zegers)	Spectrometers	Exists, planned
MoNA/LISA (Baumann)	Scintilllator array; neutron detection	Exists
VANDLE (Madurga)	Scintillator array; neutron detection	Exists
ORRUBA (Pain)	4π Si array; charged-particle detection	Exists
TRIPLEX (Iwasaki)	Plunger device; γ-ray measurement	Exists
FMA, AGFA (Seweryniak)	Separators	Both exist
CHICO2, CHICOx (Wu)	4π PPAC; inel. scattered nuclei, fragments	Exists, design phase
Phoswich Wall (Reviol)	Scintillator array; charged-particle det.	Exists
Microball (Sarantites)	4π scintillator array; charged-particle det.	Exists
HERCULES (Reviol)	Scintillator array; residues and fragments	Exists
C7LYC (Chowdhury)	Scintillator array; neutron detection	Planned
DARCY (Werner)	Plunger device; γ-ray measurement	Exists

Green = fast beam; blue = slow beam; ORRUBA and TRIPLEX for both types of beams

To be covered tomorrow…

Typical reactions for (typical measurements with) each device

- Projectile Coulomb excitation
- 1p, 2p knockout
- 1n knockout
- Deep-inelastic and quasi-elastic collisions
- “Classical” transfer in inverse kinematics
- Heavy-ion transfer in inverse kinematics
- (p,n) charge exchange
- Fusion evaporation
- Spontaneous-fission source measurements

What is missing?

Issues and questions that may or may not have been addressed yet…

Wish to understand requirements upon clock/trigger for all reactions you scientists devise. (John Anderson)

Have interest in understanding who will continue to use MyRIAD and what other sorts of interface hardware/firmware may be needed.
(John Anderson)

How do we synchronize timestamps used for event building with GRETA: full event building on at least a sample of online data for check purposes?
(Ron Fox)

Which latencies are acceptable both by GRETA (from auxiliary-detector trigger-decision logic) and aux. detector (from GRETA's trigger decision)?
(Ron Fox)

Additional points

- All aux. systems have separate DAQ's. A variety of digitizers is in use - some in an ASIC chip system, others are commercial ones.

➢ Do we need a discussion about this variety?

➢ Is sharing resources, perhaps an electronics pool, an issue?

- Fast trigger issue – see previous discussion.

Some repetition is OK…