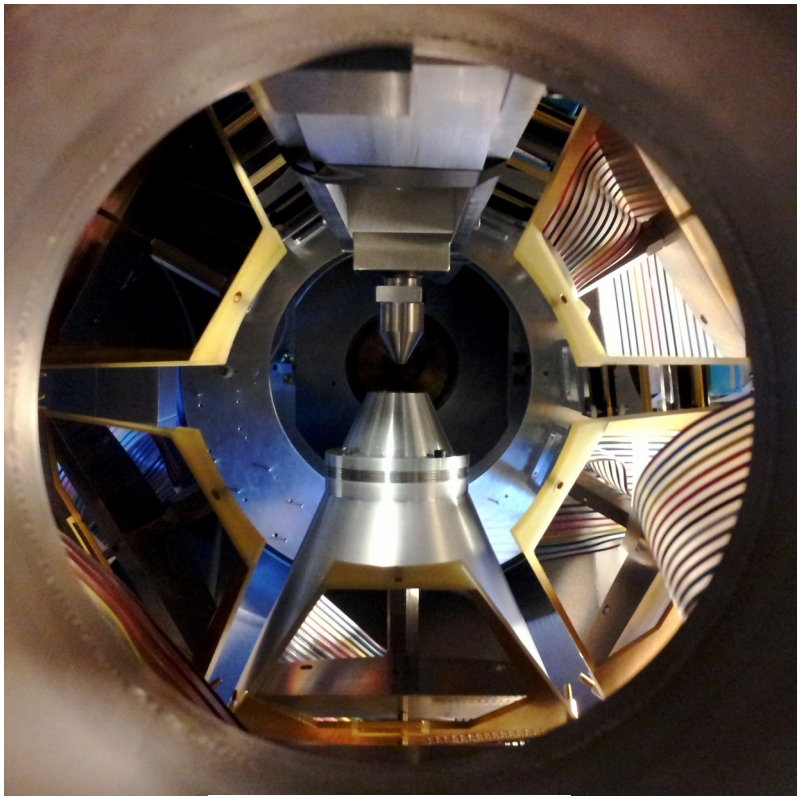
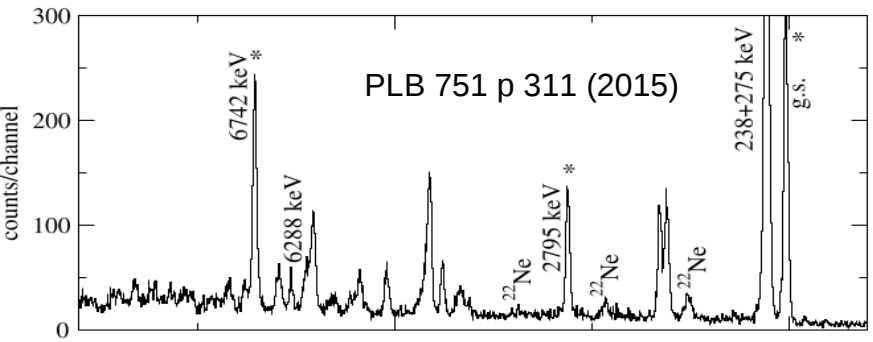
Gas Jets Working Group:



JENSA



GJWG Goals

→ Emphasize the continuing operation of JENSA in standalone mode (separate from SECAR) for astrophysics measurements

→ Possible operation of transfer with JENSA using SECAR as a recoil tag

→ Design and build a neutron array for (d,n) studies with a gas jet – world-unique

→ Design and build a gas jet for the ReA12 hall, to utilize higher energy reaccelerated beams (cf. ReA12 whitepaper), and perhaps operate with GRETINA/GRETA – also world-unique

→ Design and build gas jets for ARUNA laboratories (clean scattering/transfer/etc measurements for filling in knowledge gaps & fundamentals)

Gas Jets Working Group:

Priority Physics (at 10, 50, 100 kW)

(a,p)
(a,n)
(d,n)
(d,p)
(^{3}He,d)
(p,a)

Priority Beams (at 10, 50, 100 kW)

^{30}P
^{25}Al
^{18}F
^{26}Si
^{56,57}Ni (^{59}Cu?)
Se, Ge, Kr
Sn, Te, Xe
stable C, N, O, Ne, Mg, Cl, S, Si...
^{15}O (with SECAR)

Priority (Planned) Equipment (at 10, 50,100 kW)

- JENSA upgrades: cryogenic chiller, new target chambers
- Neutron array for (d,n) with JENSA
- Gas jet for ReA12
- Gas jet with capability to run with GRETINA/GRETA

Beam property/DAQ requirements?

- “pencil” beams
- 1-2mm beamspot
- pulsed (~few ns) for neutron measurements, or near-DC beam for capture/transfer
- beam intensities >10^{4} pps
- purities >60% (needs to be better at higher intensities)
- DAQ/controls as-is