W&M Target Lab Update

- Technician--Sabine Fuchs
- G_E^n cell production continues.
- Explosion tests finished.
- Development of spectrometer for pressure broadening--work in progress.

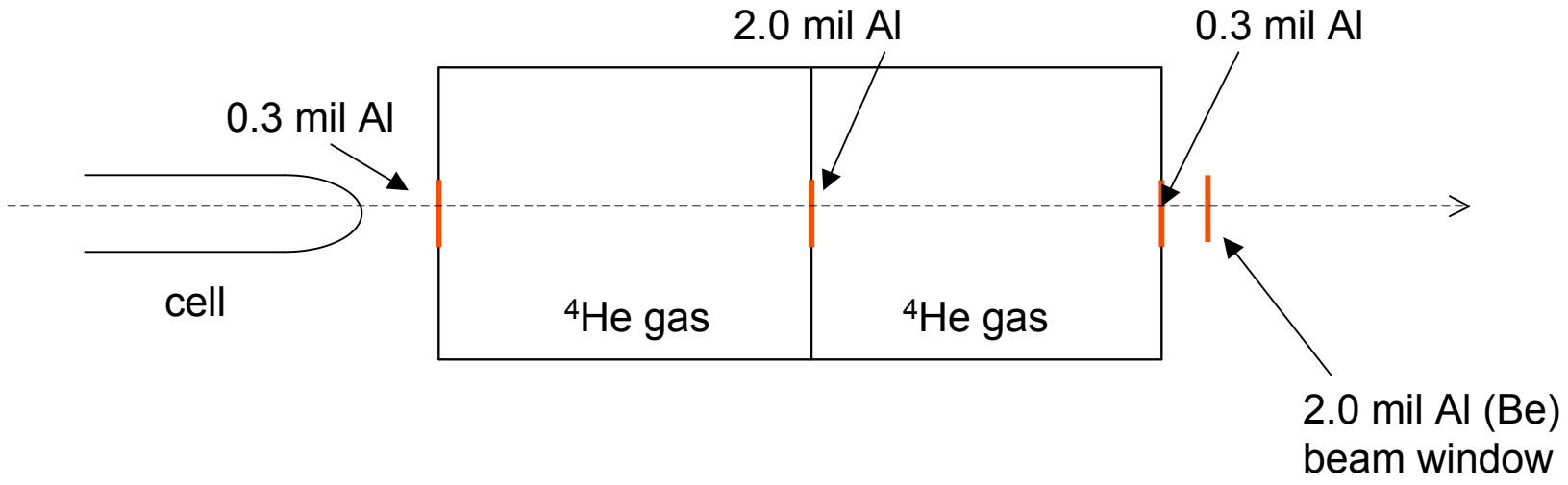
G_E^n target cell inventory

- All cells are small pumping chamber, hybrid alkali.
- Two more Souza cells on order for November.
- Cell temp=240°C

Cell Name	Glassblower	Density	Lasers	P_{max}
Bubba	Souza	11.5 amg	2	39%
Eva	Willy	7.52 amg	2 or 2.5	53%
Carlos	Souza	8.56 amg	2	43%
Simone	Willy	8.53 amg	2	38%+
Mamma Mia	Mike/UVa non-G_E^n	7.9 amg	2	51%
Slump	Willy	water		

Explosion Chamber Tests

- Upstream and downstream chamber designs successfully tested with 2 mil intermediate window; 0.3 mil end windows.
- No slots in chamber; filled with ^{4}He gas.
- Report available on G_E^n website.



Requirements for A_y Measurement

- Measure target single-spin asymmetry, A_y.
- Vertically polarized neutron (^{3}He) target.
- Approved for 7 days of running at Q^2=0.5 and 1.0 GeV^2.
- Test hadronic calculations at lower Q^2; GPD models at higher Q^2.
- Have begun to contact theorists for hadronic calculations.
- Detect inclusive QE electrons using HRS's.
- Expected A_y=1-2%; statistical precision 0.1-0.2% (abs).

A_y con't

- Largest systematics: nuclear correction (need A_y^p) and inelastic tails.
- Relative luminosity needs to be controlled to 2×10^{-3}. Hall A lumi's can measure to +/-0.5% for a single pair. Sufficient?
- Could add additional detector(s) for inelastic backgrounds, luminosity monitor, or other physics.

A_y con't

- Target spin flip using RF as frequently as reasonably possible; time scale=minutes.
- Need to demonstrate proof of principle and establish time-scale for flipping.
- Can do at W&M in several weeks of work.
- Request to test RHWP at W&M ASAP.
- How do we measure vertical field direction precisely?
- Time critical item will be design of new target and oven/lifter.