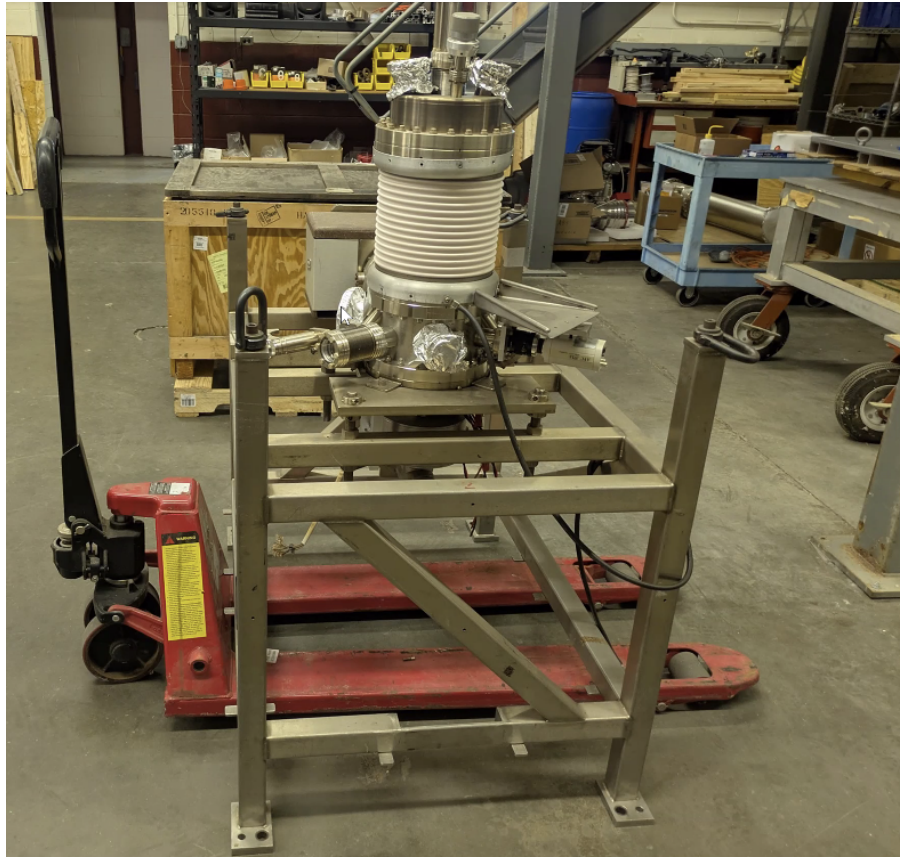


Prajwal

- Chopping off flange welded onto far side, then will hang ABS from this stand



- Areal density of storage cell: $\sim 6.8 \times 10^{12}$ atoms/cm²
 - Storage cell needed for polarimetry requirements (1%/sqrt(hr) with sufficient flux) (even at RHIC)
- Heat load of previous storage cells of similar physical size and thickness: 10W to maintain ~ 15 K with 30-40mA current
 - At EIC: ~ 1 A and ~ 10 K $\rightarrow$ electrical resistivity is a bit of a concern (aluminium is one of the less good metals)
 - Eddy currents very high in aluminium storage cells
 - **Stainless steel performs better**
 - Other metals could also work
 - Metal cells also provide issues with wake field
 - Wake field calculations of chamber + cell
 - Need calculations to find a compromise
 - Issues with ceramics (ceramics have extremely good electrical conductivity)
 - Cooling time increases significantly with stainless steel (to O(days)) vs aluminum which is ~ 8 hrs
 - Terrible thermal conductivity so would take even longer than stainless steel to cool (factor of 50 lower)
 - Possibly sandwich materials: metal + ceramic

- Previous storage cells which Richard has built: always used ultrapure aluminum
 - Wake field issue is much smaller when smooth, comes into play more so with transitions
 - No issues with wake field @ DESY
 - Comparing light source parameters with EIC to see how much more challenging we expect EIC to be compared to setup for previous storage cells
 - Pulse duty factor
- Laser driven source? Such as at JLab
 - Higher target thickness allowed (many orders of magnitude higher)
 - ~80% polarization off target
 - Versus ABS 98-99% polarization
 - Contrast of 1% at ABS vs O(10%) for laser source
 - Most important to be able to take a precise measurement
 - Proceed with ABS now, if statistical precision is not an issue maybe discuss transferring from atomic source to laser source
- Conclusion from literature (Prajwal): wake field should likely not have a concerning effect with aluminum (or combination of metals) with smooth transitions; we can go up to thickness of six microns with aluminum window
- AGS has sigma ~1-3mm (3mm @ injection)
 - Frank: paper draft with EIC flat top and injection parameters
 - O(3.5mm) at injection for EIC
 - 1cm diameter? Or 1.5cm?
- How quickly can we take it from room temp to 10K?
 - We didn't really end up talking about this
- Locations for ABS
 - Understand the beam optics for the locations as well (AGS)