Mu2e Electrostatic Septa Design Review

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Vladimir started with an introduction to Mu2e. Matt gave presentation on design status and simulations.

Asked to focus on:

* Foil plane quality – tolerances
* Foil plane and cathode alignment – motion
* High Voltage
* Vacuum

**Open Issues and recommended actions**

* Access to ESS in beamline
  + How to remove?
  + Is there clearance to install lead blankets on top of the ESS when working on it?
* Look into radiation damaged properties of 17-7PH stainless.
* Galvanic corrosion – stainless on aluminum (spring on frame)?
* Virtual leaks at crimp of foil assembly
* How to handle QC of foils and fixture
* Cleanliness
  + RGA of Mo foils
  + Cleaning after crimp?
* Repeatability of foil spring constant
* Develop a process to store foils
* Peaks on simulation from plot 25?
* Ceramic spacer design for clearing electrode – Chris Jensen input needed
* Material of cathode standoffs – Other than Macor?
* Look into standard standoffs from ESS and separators for use with this ESS
* Review cathode standoff support results with Chris Jensen
  + Look at field inside ceramic
* Change HV feedthrough seals from EPDM to metal seals
* Resistor radiation damage in HV feedthrough
  + Exact resistance is not critical
* HV feedthrough should use alumina as well instead of Macor
* Log of ratio of diameters controls field around re-entrant skirt, not the exact distance. Look at the prototype vs design for this.
* Cathode and frame are thermally isolated, look into thermal analysis
* What integrated intensity is critical for g-2 circulating beam?
* Look at effects of losing foil at end of the frame
* Look at processing of the ESS for UHV – baking, etc
* Addition of vacuum pumps in recycler near the ESS
* 8in diameter port higher pressure than 6in – take a look at simulation setup
* Apparent thickness change for missing foil – warping
* Spares

Need to note areas of high concern