EIC Beamline R & D Status

Detector Support Group
March 15, 2023

EIC

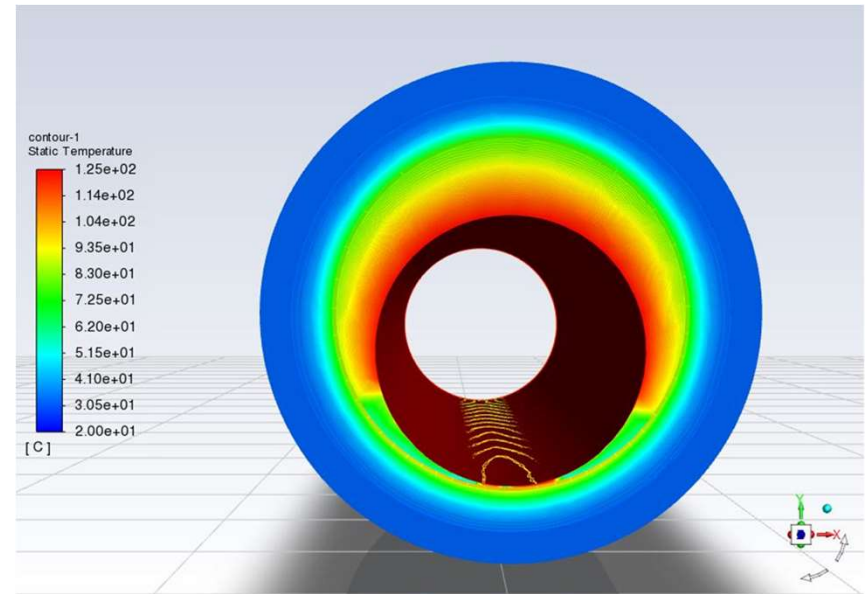*Brian Eng, Pablo Campero, George Jacobs, and Marc McMullen*

- Added aerogel to the test stand's simulated Beryllium beam pipe

March 15, 2023

- Completed Ansys Fluent setup to perform thermal simulations of the beampipe used in test stand
  - ✶ Set temperature of 125°C at the outer face of the volume used to represent the heater and a temperature of 20°C at the annulus space
  - ✶ Used coupled method (pressure-velocity scheme)
  - ✶ preliminary results below

Air flow velocity [m/s]	Si sensor max. T [°C]	Si sensor min. T [°C]
1E-07	119.43	118.92
0.1	89.54	86.11
0.2	70.13	66.08
0.5	46.88	43.17
1	37.60	34.63
1.6	33.23	30.71
2.1	31.36	29.12

Front (inlet) view of temperature contour results for model with air flow velocity of 1.6 m/s at 20ºC