DSG Ansys R&D Meeting

Date: June 15, 2023
Time: 2:00 PM – 2:30 PM

Attendees: *Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, and Marc McMullen*

1. **EIC test stand thermal analysis**
   Pablo Campero, Brian Eng, and Marc McMullen
   1. Discussed improvements to the model
      - Changed heaters' immersion length from 9.25 to 18.5 inches
      - Modified heater inner volume part to fit heater elements
      - Corrected model interferences
   2. Resolving pre-simulation issues
      - Encountered floating point exception errors, potentially related to the setup of mineral oil fluid inside the heater pipe
      - Tried Laminar and K-epsilon models; error persisted when mineral oil was applied to the inner volume of the heater pipe
      - Removed previously applied polynomial coefficients for the variable thermal properties of the mineral oil and used constant values instead
   3. Reviewed preliminary results shown in temperature and velocity contour plot with a turbulent K-epsilon model
      - Noticed velocity increment at the outlet of annulus space
      - Temperature went up to ~1800°C for the set calculated heat source in each heater element
      - Will check calculated heat source value