

## DSG Ansys R&D Meeting

**Date:** April 27, 2023

**Time:** 2:00 PM – 3:00 PM

*Attendees: Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Marc McMullen, Tyler Lemon, and Amrit Yegneswaran*

### 1. NPS detector volume thermal analysis

*All*

1. Contacted Ansys support regarding setting up proper cell zone conditions and boundary conditions
2. Completed simulation for initial setup
  - Monitored temperature and velocity for each component
  - Compared results with specifications
  - Generated multiple contour plots and pathline scenes
  - Maximum temperature on crystal block was 22.92°C

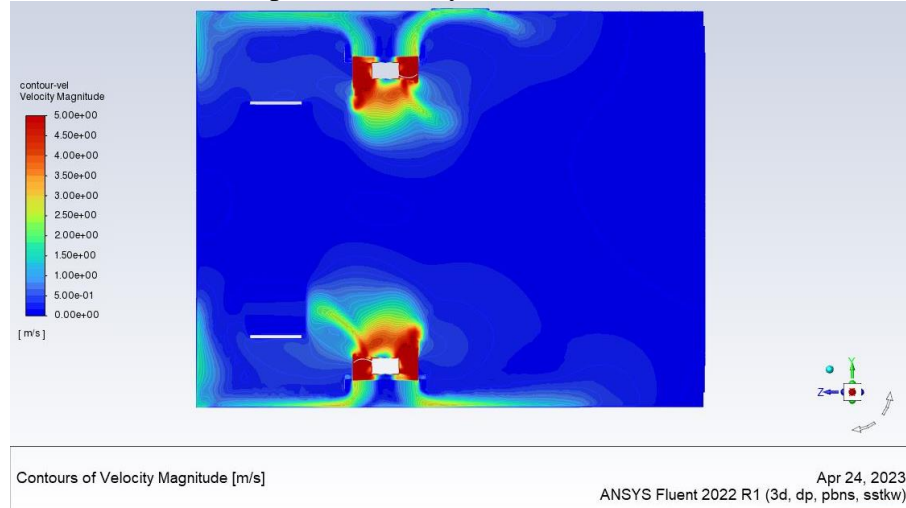


Fig.1. Velocity contour plot for initial setup

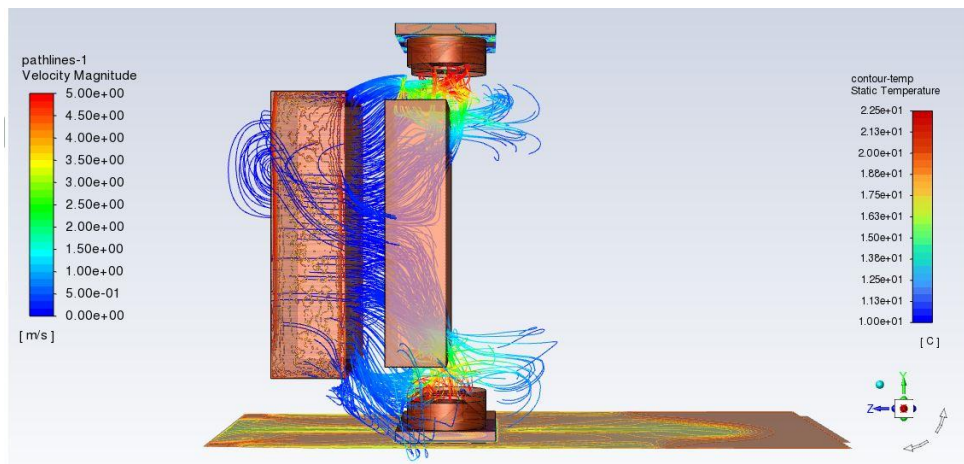


Fig.2. Velocity Pathline scene and XZ plane temperature contour plot

3. Discussed talk with initial thermal simulation results presented by Pablo Campero
  - Contour plot with XZ plane in the central section will be added
4. Discussed High Performance Computing (HPC) licenses at JLab
  - Pablo Campero noticed that two licenses are used when more than four processors are set for the Fluent simulations and four licenses are taken when more than six processors are used
  - Possible plans to get three more Ansys HPC-Packs; mentioned by Todd Coates and Gary Cheng
    - The estimated cost is around \$90K
    - Groups at JLab will probably share the cost
    - Three more HPC-Packs would enable us to run up to 132 core computations in ANSYS Cloud