

DSG-Ansys R&D Meeting Minutes

Date: July 14, 2022

Time: 14:00 to 15:00

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

1. NPS thermal analysis

Pablo Campero and Brian Eng

1. Working on CFD thermal simulation in *Ansys Fluent* to include heat exchangers' heat removal effect by adding rotation to the fans in a perfectly isolated detector enclosure
 - Modified geometry in Design Modeler Ansys software. Split each face that has multiple contact regions in the electronic volume and air volume that contains the crystals
 - Configured and tested new contact regions
 - Meshed model
 - Set up rotating domain volume (containing the fan blades) to 1600 rpm
 - For this test the energy or heat generation was not considered
2. Discussed simulation results
 - From the simulation plots, observed that the fan is rotating in the CCW direction and the air is pushed down to the electronic volume
 - Will run another simulation with rotation coordinates at $x=0$, $y=-1$, and $z=0$ to see the fan rotation changes
 - Agreed that velocity vector plot is required to determine if the rotation is correct

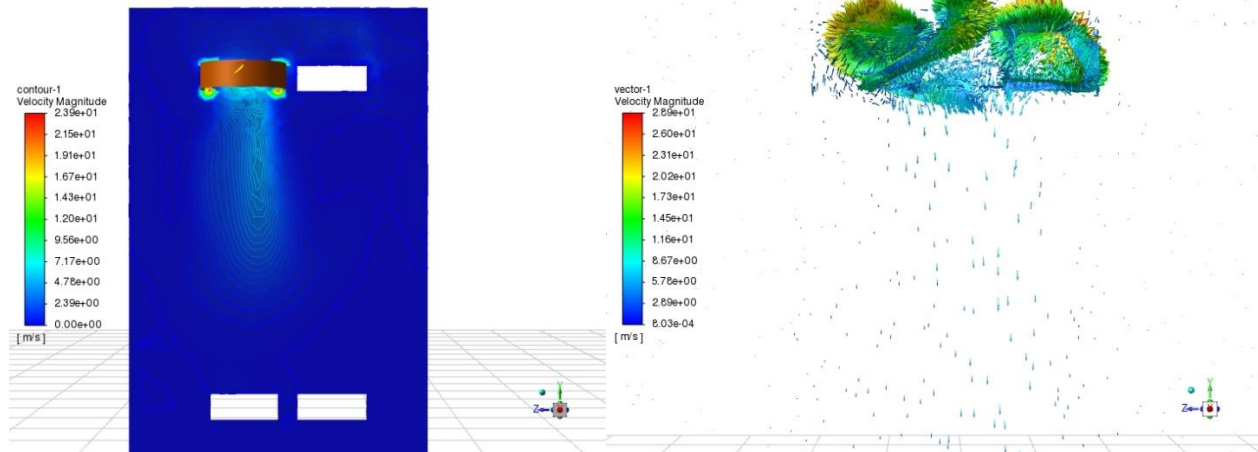


Fig.1. Velocity contour plot (left picture) and vector velocity plot (right picture)