

DSG-NPS R&D Meeting Minutes

Date: June 28, 2022

Time: 11:00AM – 12:00PM

Attendees: Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, and Marc McMullen

1. Hardware Interlock System LabVIEW Program Development

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, and Tyler Lemon

1. Discussed issue of block diagram layout changing randomly for unknown reason
 - The only time this has been observed is when two people are working on the same VI

2. Ansys Steady-State Thermal Simulation

Aaron Brown

1. Reviewed latest simulation results with 0.3 W applied to the rear face of each crystal
 - Total heat flux numbers still seem too high for amount of heat applied to system
 - Will try refining mesh to see if this gives results more in line with expected results
 - A new single crystal model will be developed which will include the carbon fiber and mu-metal dividers as well as the copper cooling shell to give a baseline of what to expect for total heat flux

3. Ansys Fluent Fluid Thermal Simulation

Pablo Campero, Marc McMullen

1. Reviewed simulation with detector model developed by Marc McMullen using 1000 W heat load and one single fan rotating at 1600 RPM
 - Simulations are taking a long time (> 1 hour); Pablo will work with Marc to further simplify detector model to see if that reduces simulation time
 - Marc will remove everything from the crystal array except for the crystals, PMTs, and divider bases