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Placing Temperature Probes on the NPS Crystal Array for Thermal Analysis with Ansys

Using Ansys simulation software, I added temperature probes to the front and back faces of the 1080 crystals in the NPS crystal array Ansys model made by Aaron Brown. Picking up where Aaron left off, 1871 probes were added. In the figure below, the probe for the back face of crystal 339 is indicated.
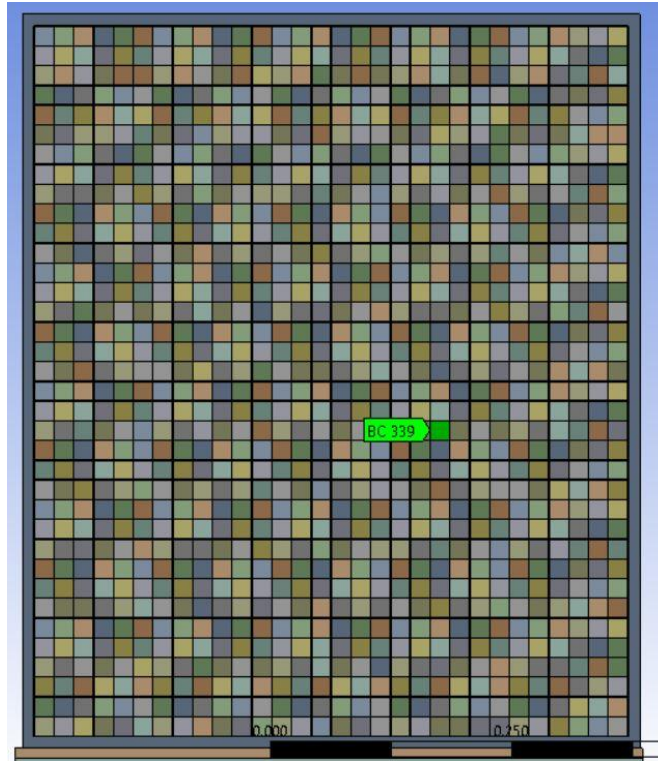

FIG. 1. Back face of the NPS crystal array. Green label indicates the temperature probe of crystal #339.

I began by remotely logging in to Aaron's computer, since I did not have Ansys software. After some disconnections and then power loss in the EEL building, I requested and received Ansys on my laptop.

Problems have been encountered. Sometimes, when attempting to place the probe on a crystal face, I had to move the cursor around until the software found the spot that allowed me to select the face (indicated with a dotted line), typically the applicatiion has to choose the spot on the first try. If the face can't be chosen, the probe has to be deleted and the process begun again. Also, there have been a few occasions when the program has frozen and has needed to be closed and reopened. Once, when after completing a column of 35 probes, the program would not save the placed probes; so the program needed to be closed, reopened, and the 35 probes of the column redone. The task of placing all the probes has been completed.

In the upcoming month, I will be working on the hardware monitoring LabVIEW code and user interface for the NPS chillers.