

San Diego State

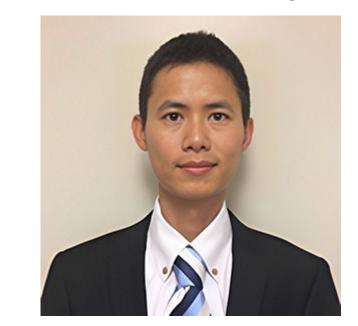
University

Fast Heating Furnace

Team Members: Brian Riley, Adrian Hidalgo, Pablo Hinojosa Amaya, and Gabriel Schauer

Sponsor: Dr. Xu Wenwu

Meet our Sponsor:
Dr. Xu Wenwu
Associate Professor of
Multiscale Modeling of
Materials, San Diego State
University



Project Overview

In collaboration with Dr. Wenwu Xu, our team was responsible for developing a fast heating furnace for use in a Scanning Electron Microscope (SEM). The system is designed to rapidly reach high temperatures.

Our Team



Brian Adrian Riley Hidalgo



Pablo Hinojosa Amaya



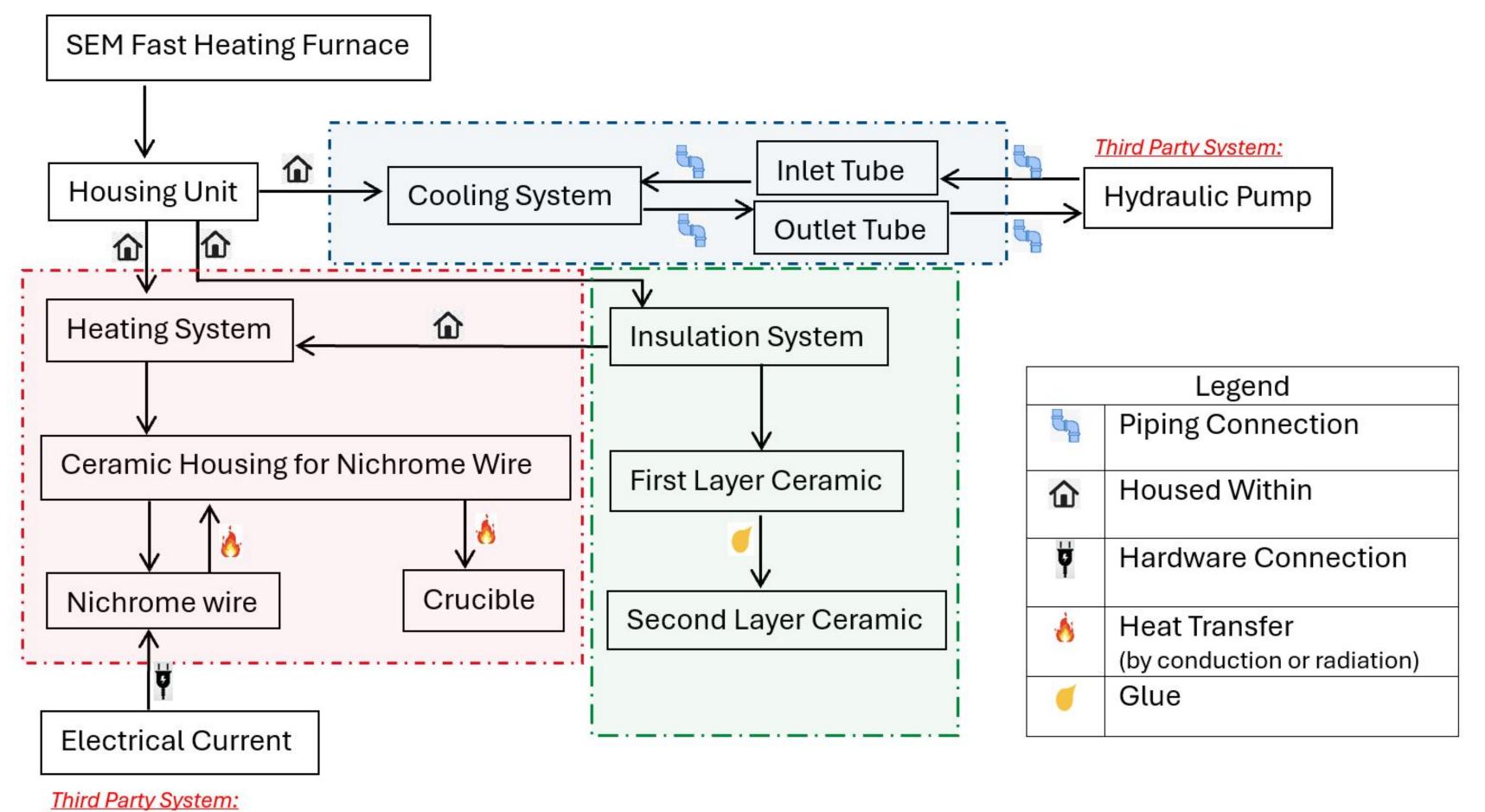
Gabriel Schauer

Testing & Analysis

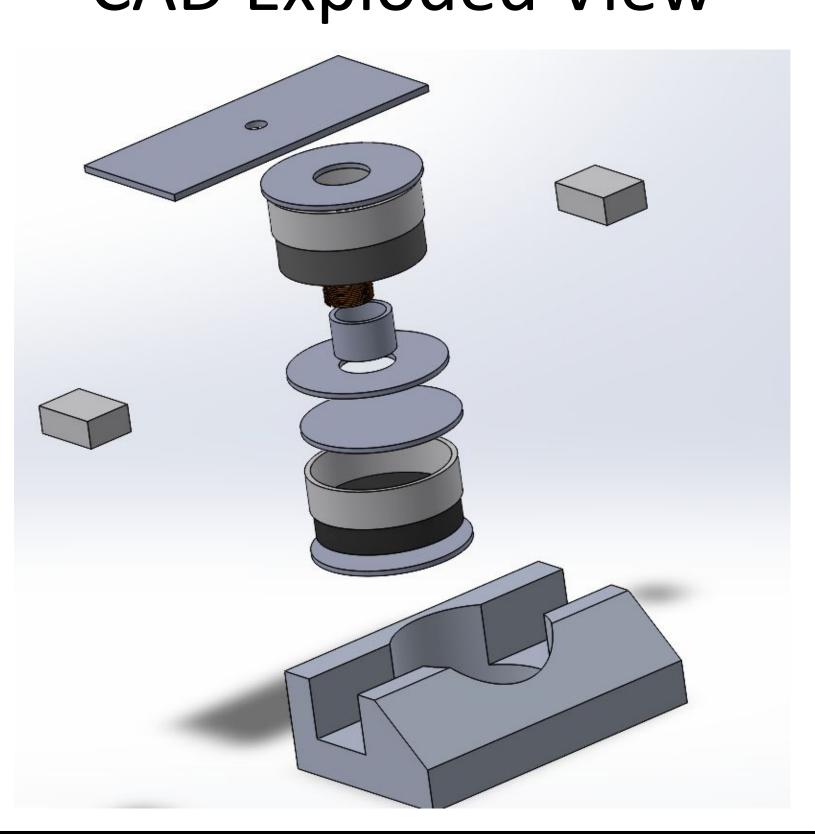
Using the SEM's data acquisition system to read temperatures from the thermocouple on the crucibles top and bottom surface. Testing for the rate of heat (minimum of 50C/min) as well as reaching the goal of 900C. While also assuring the safety of the microscope within the system.



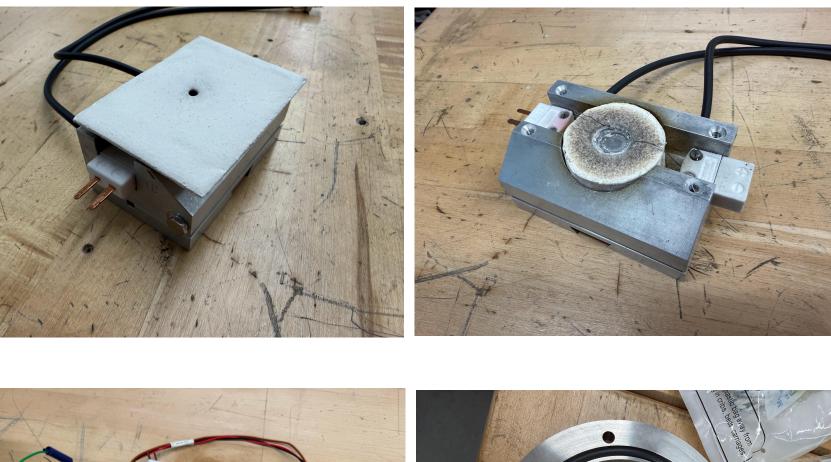
System Level Diagram

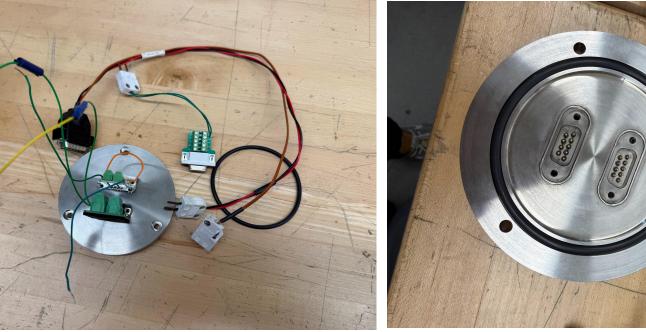


CAD Exploded View



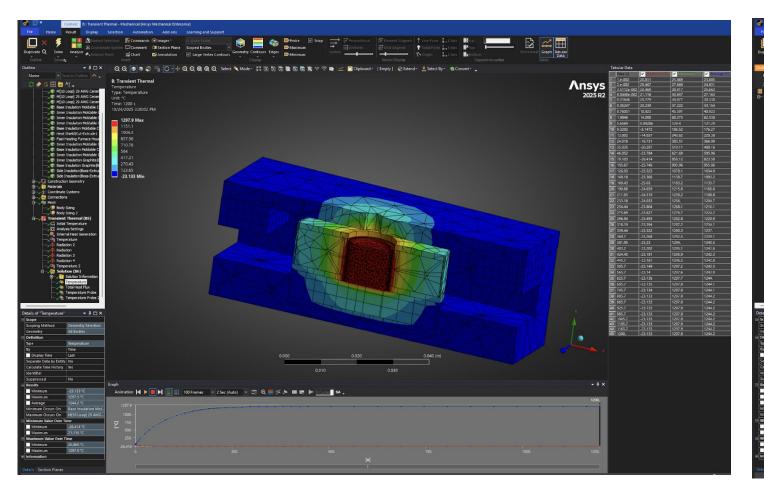
Manufacturing

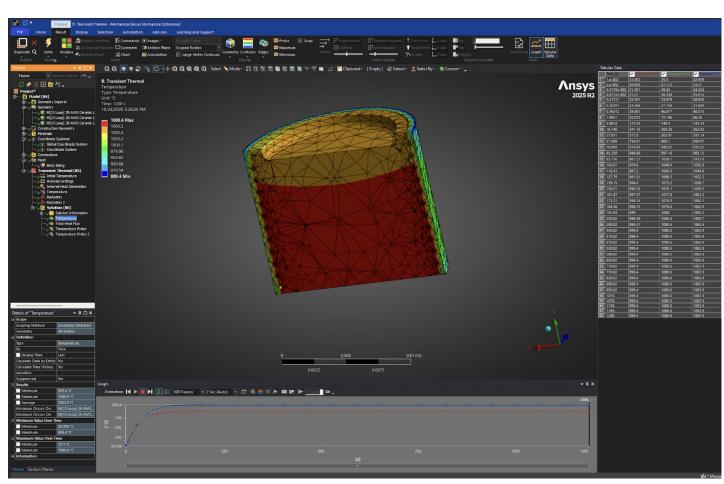






ANSYS Simulation





Ansys simulations that show that our design for the fast heating furnace would achieve our goals.