High Strain Rate Measurements of Inconel 625 for Dynamic Forming Simulations

This project focuses on the mechanical behavior of Inconel 625 at various temperatures and strain rates to better understand how the material behaves during dynamic metal forming processes. We use a specialized Pulse-Heated Split Hopkinson Kolsky Bar to observe stress and strain at high strain rates () and an MTS to observe low strain rates (). These measurements are then used to calibrate the Johnson-Cook flow stress model which is a simple but powerful equation for material strength at high strain rates and temperatures. The calibrated model will then be used to simulate the dynamic forming of laminae components for a heat exchanger.