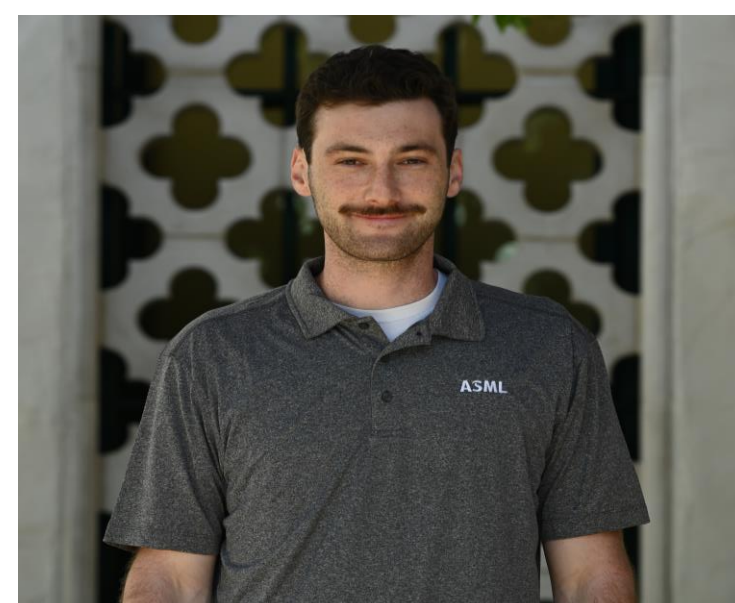


Project Overview

ASML's Porcupine test vessel evaluates tin-hydrogen interactions to better understand behavior within Extreme Ultraviolet (EUV) vessels under realistic conditions. The system relies on a Z-stage for precise positioning and camera systems for data collection and visual monitoring. Currently, the manual Z-stage reduces testing efficiency, and the camera setup has limited views. This project addresses these issues by implementing an externally controlled automated Z-stage, mounting a digital camera inside the vessel, and mounting a thermal camera outside the vessel to improve efficiency and test capability.

Meet the Team



Zachary Dietderich



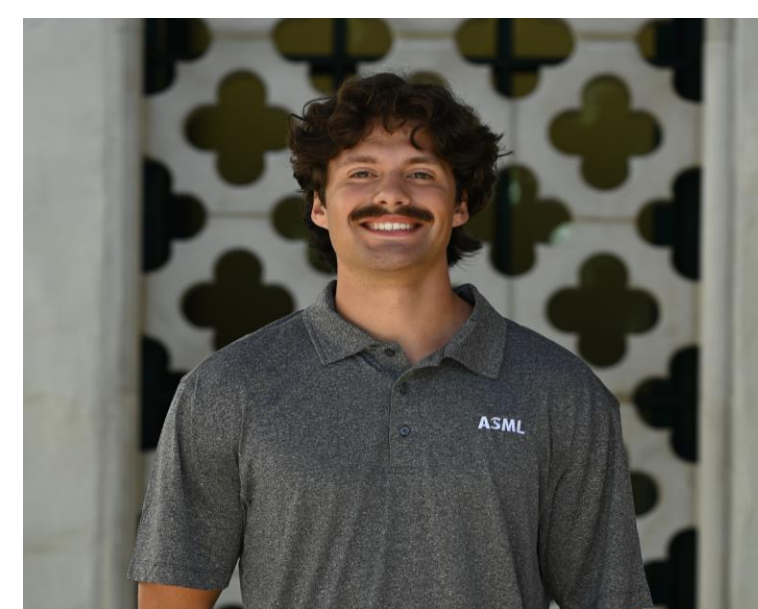
David Klunder



Luke Peters

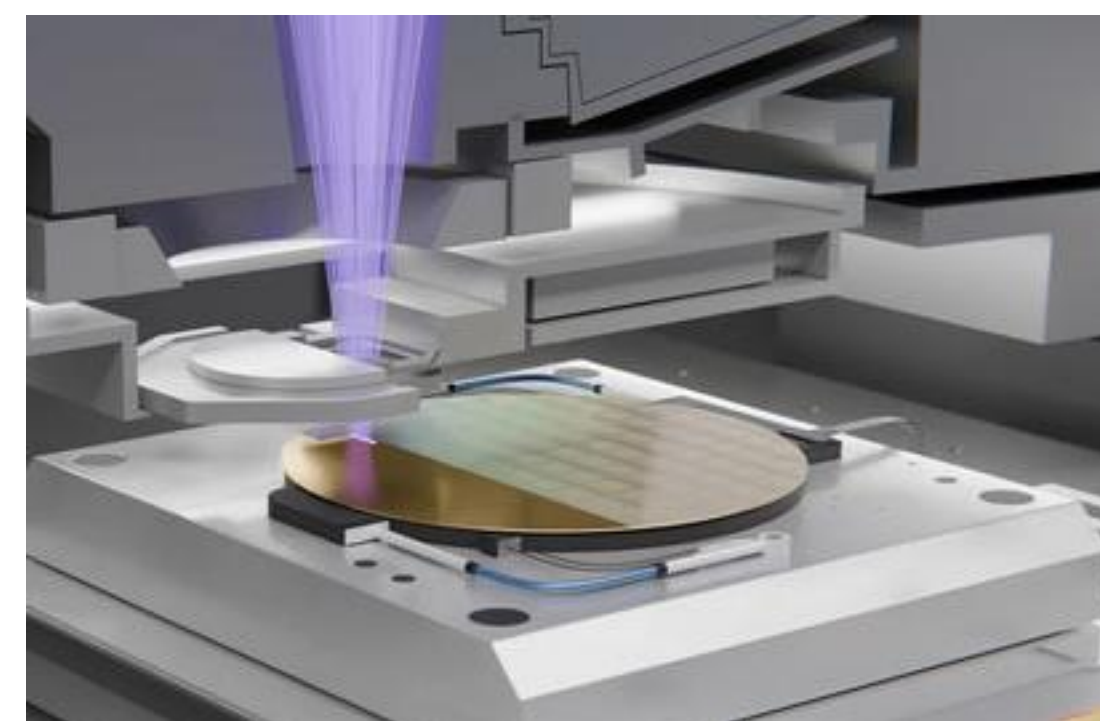


Clayton Messick



Tomas Puente

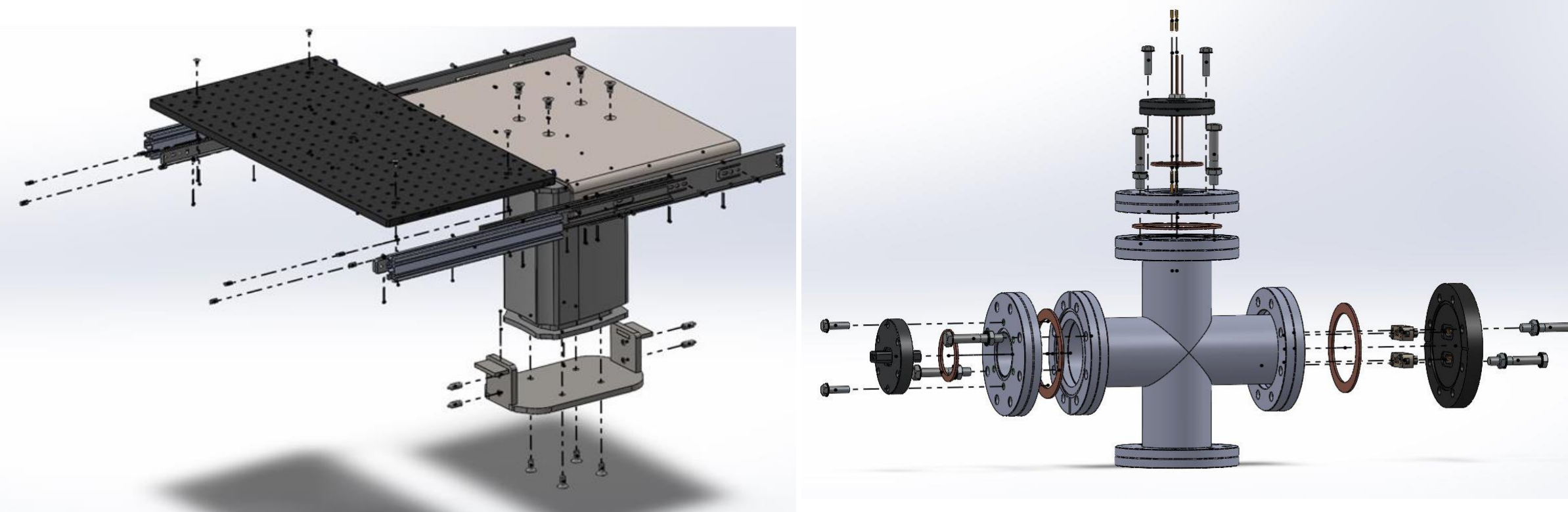
Meet the Sponsor



ASML is a leading semiconductor equipment manufacturer and the world's primary supplier of advanced photolithography systems used to produce microchips. Its extreme ultraviolet (EUV) technology enables the fabrication of smaller, faster, and more efficient chips that power modern electronics.

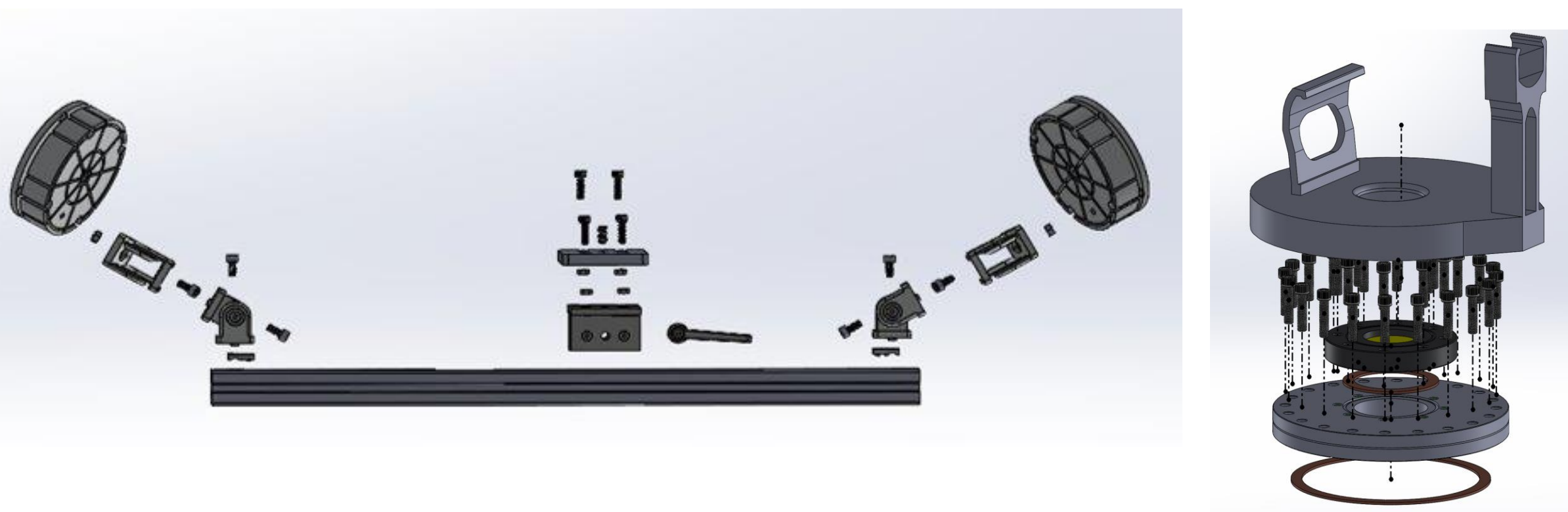
CAD Assemblies

STAGE & FEEDTHROUGHS



The Z-stage provides precise vertical positioning of tin samples under vacuum. A lifting column was selected for strength and reliability. Feedthroughs enable external control without breaking vacuum.

DIGITAL & THERMAL CAMERAS

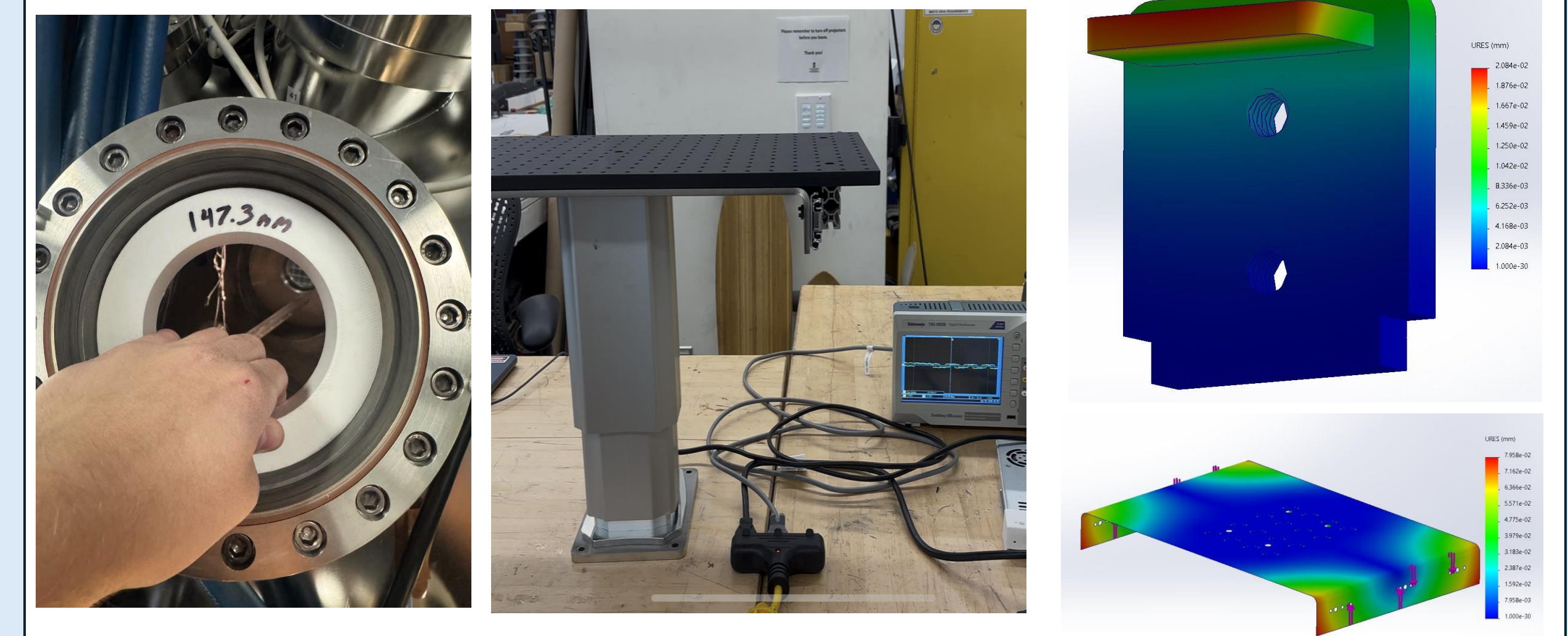


The digital camera is mounted inside the chamber on an 80/20 suspended by ID clamps providing high-resolution imaging. The thermal camera is mounted externally and views through a ZnSe window.

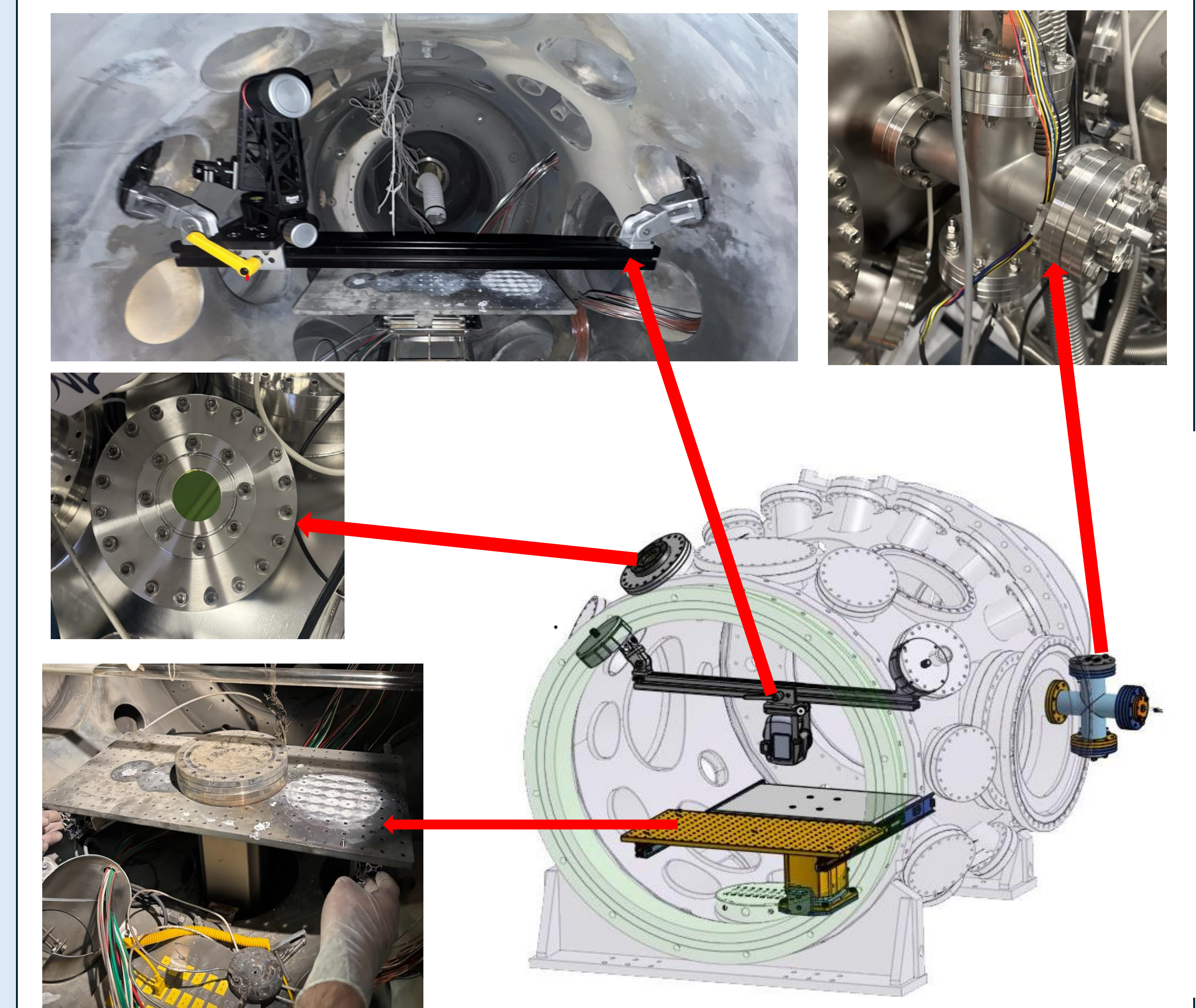
Manufacturing



Testing & Analysis



Final Integration



Acknowledgements

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