

## **Helium Implantation Sample Preparation and Handling in the Small-Scale Transuranic Lab within the Materials Characterization Center**

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Reliable sample preparation and mounting are critical to the success of helium implantation experiments. Previous runs using silver paint encountered contact-related issues by the time samples reached Center for Accelerator Mass Spectrometry (CAMS), preventing the experiment from moving forward and resulting in significant loss of time, cost, and coordination effort. This poster describes the helium implantation sample workflow carried out through the Small-Scale Transuranic Lab within the Materials Characterization Center (MCC), including machining, loading, transfer, and installation into the vacuum chamber. Because the work is performed in an actinide laboratory environment, the process involves extensive planning, radiological controls, rigging support, lift plans, and coordination across multiple organizations.

In addition to documenting the workflow, this work evaluates silver epoxy as a possible alternative to silver paint for sample mounting. Testing[MAM1.1] is focused on whether the new material improves contact reliability while still allowing sample removal after implantation for downstream use. Evaluation of bond strength through heat cycling will further inform material selection. This poster highlights both the complexity of the helium implantation preparation process and the importance of mounting material performance in improving experiment reliability.

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