Mechanical Testing of Ceramic-Metal Interpenetrating Phase Composite

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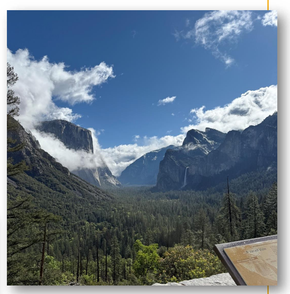
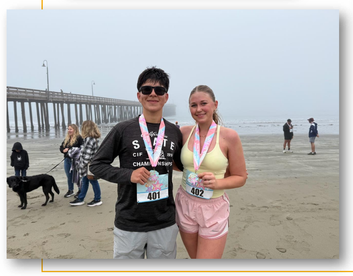
ABOUT ME

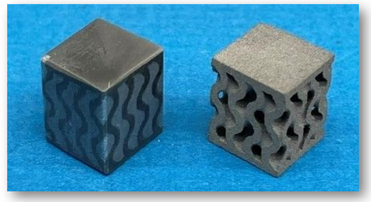
- **Education:** I am Mechanical Engineering Major at BC, transferring to Cal Poly SLO.
- **Career goal:** I want to contribute to meaningful research through science and engineering. I chose to intern at LLNL because I wanted to be around engineers, physicists, and scientists who are helping advance the world today.
- **Interest:** In my free time, I enjoy 3D printing, running, and spending time outdoors in nature.

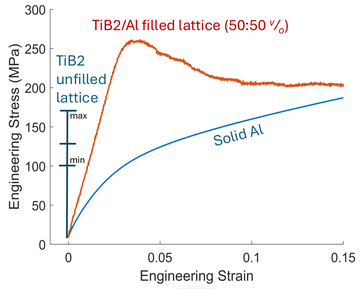




SUMMER RESEARCH

- **Abstract:** Determine the compressive and flexural strength of an advanced manufactured ceramic composite. Advanced ceramics are characterized for their strength to weight ratio. This composite aims to combine this property with the toughness of aluminum and counteract the brittleness of ceramics to create a material with high energy absorption capacity.
- **Methods:** To determine the strength of the material I used an Instron Material Testing Machine to apply a known axial load to each sample until failure. We followed the following standard testing procedures.
  - ASTM C1161 "Flexural Strength of Advanced Ceramics…"
  - ASTM C1424 "Compressive Strength of Advanced Ceramics…"
- **Resources:**
  - Mechanics of Materials Test Facility
  - Journal of American Ceramic Society "Compression Strength of Advanced Ceramics: An overview and data summary"
  - LLNL Research Library





LLF AWARD

- The LLF funds made it possible for me to pay for housing, groceries, and commuting fees. I am very fortunate to be a part of LLF because the additional support has allowed me to save toward my university tuition.
- This fellowship has provided meaningful financial support. It has also given me insight into engineering careers, expanded my vision of possible future roles at the lab. Fellow Fridays gave me the opportunity to network with people entering the same career path as well as professionals with years of experience.

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