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***Project 60: Fundamentals of Recrystallization in  
Binary Nb Alloys***

***Semi-annual Fall Meeting  
October 2021***

- Student: Will Waliser (Mines)
- Faculty: Dr. Amy Clarke (Mines)

# Project 60: Fundamentals of Recrystallization in Binary Nb Alloys



- Student: Will Waliser (Mines)
- Advisor(s): Amy Clarke (Mines)

**Project Duration**  
MS: September 2021 to 2023

- **Problem:** Hf additions have been shown to increase recrystallization temperatures in Nb alloys, but alternatives that produce similar effects have not yet been identified.
- **Objective:** Identify binary and/or ternary Nb alloys of interest and experimentally measure recrystallization parameters and microstructural evolution with thermomechanical processing.
- **Benefit:** Improved performance of superconductors and/or refractory multi-principal element alloys (RMPEAs).

- **Recent Progress:**
- Literature review
- Initiate coursework and equipment training
- Obtain/produce binary Nb alloys:
  - V, Ti, Cr, Zr, Mo, Hf, Ta, W, Re, Si, Ge

Metrics		
Description	% Complete	Status
1. Literature review	15%	●
2. Select and obtain/produce binary and/or ternary Nb alloys	0%	●
3. Thermomechanical processing and heat treatment of as-cast materials	0%	●
4. Assess recrystallization temperatures and kinetics via Gleeble experiments	0%	●
5. Microstructural characterization of thermomechanically processed samples	0%	●



# About Me



Thank you!  
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