

***Project 36H-L: “Additive Manufacturing of Refractory
Multi-Principal Element Alloys”***

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

- Student: Megan Le Corre (Mines)
- Faculty: Dr. Amy Clarke (Mines)
- Other Participants: UT/ORNL, ISU, OSU, Virginia Tech, UCSB, U. Sydney, UNSW



Project 36H-L: Additive Manufacturing of Refractory Multi-Principal Element Alloys



- Student: Megan Le Corre (Mines)
- Advisor(s): Amy Clarke (Mines)

Project Duration Current
PhD : September 2021 to 2025

- **Problem:** Microstructure-process relationship for additively manufactured refractory alloys is limited.
- **Objective:** Understand the role of processing on microstructure and defect development and control.
- **Benefit:** Develop a more robust understanding of the impacts that AM processing has on alloying and microstructure design of RMPEAs optimized for AM.

- **Recent Progress:**
- Literature review
- Initiated coursework
- Electron microscopy training
- Identify existing RMPEAs for laser track melts (F. Coury, PhD Thesis)

Metrics		
Description	% Complete	Status
1. Literature review	2%	●
2. Thermo-calc and solid solution strengthening modeling for alloy design	0%	●
3. Arc-melt new alloy buttons for laser track melts	0%	●
4. Laser track melts and correlate microstructure observations with AM processing conditions	0%	●
5. Columnar-to-equiaxed transition (CET) modeling	0%	●

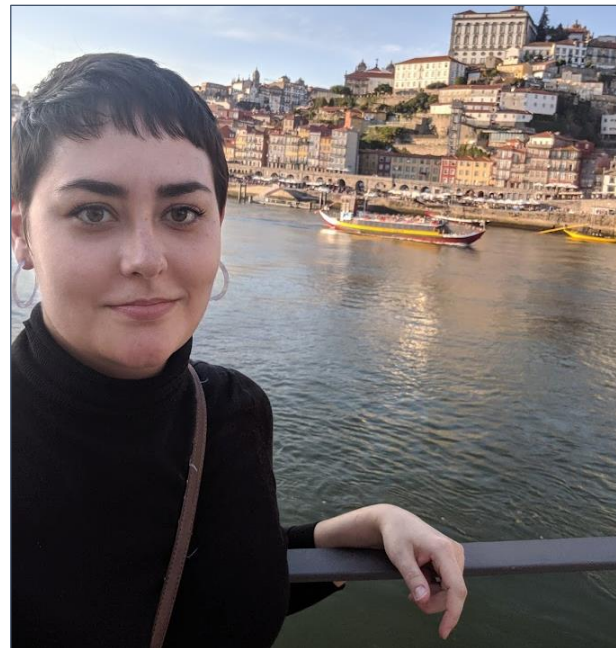
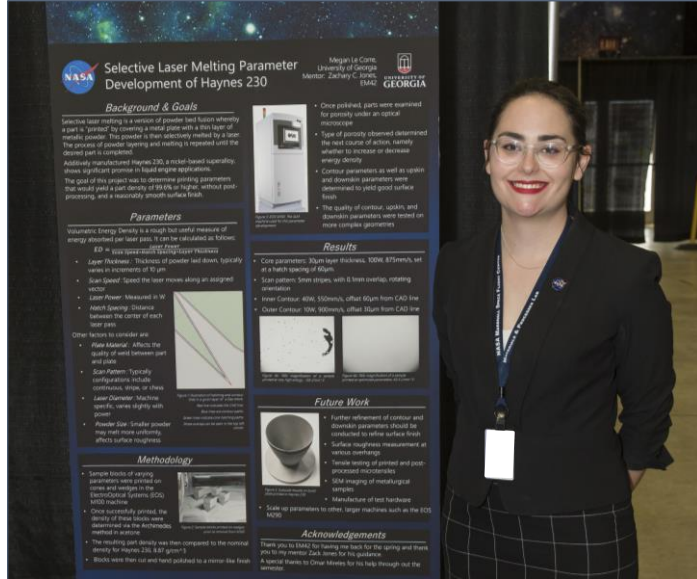
About Me: Educational and Work History



- University of Georgia
 - B.S. Mechanical Engineering (December 2017)
 - Undergraduate Researcher / Mechanical Team Lead
 - UGA Small Satellite Research Laboratory
 - Two CubeSat Missions: SPOC and MOCI
SPOC launched September 2020
- NASA Marshall Space Flight Center
 - Additive Manufacturing Engineer (mostly)
 - Intern (Summer 2017 & Spring 2018)
 - Contractor (May 2018 – February 2020)
 - Civil Servant (February 2020 – July 2021)



About Me: Pictures



Thank you!
Megan Le Corre
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