Graduate Research (GRA) Opportunities
Processing and Structure-Property Relationships in Structural and Functional Alloys

Introduction – The Weld Cracking and Weldability Group at The Ohio State University is seeking two graduate students (PhD applicants preferred) in the areas of weld processing and structure-property relationships. The work aims to understand the interplay between processing parameters, microstructure, and performance of structural and functional metals and alloys. The graduate student(s) will:

- Work on a new project within the NSF I/UCRC Materials and Manufacturing Innovation Center (Ma²JIC) focusing on how waveform controlled gas tungsten arc welding (GTAW) processes can be used to eliminate the need for back purging for open-gap welding of austenitic stainless steels, and which parametric factors are important to achieve acceptable corrosion resistance.
- Work on an ongoing NSF project to evaluate rapid solidification effects on microstructure formation and magnetic properties in laser-deposited Ni-Mn-Ga shape memory alloys (Heusler alloys). The goal is to identify fundamental relationships between rapid solidification and cyclic reheating, and microstructure evolution including grain size, segregation and non-equilibrium phase formation.
- Collaborate extensively with industry, researchers at national laboratories, and materials modeling and characterization colleagues within the Department of Materials Science and Engineering (MSE).
- Gain proposal-writing skills.

Qualifications – The ideal candidates will have:

- Undergrad major in welding engineering, materials science and engineering, or closely related field,
- Understand physical metallurgy and corrosion in metallic materials, bonus points for experience in microstructure characterization (SEM, XRD),
- Clear and effective communication in writing and words,
- Highly motivated, quick and willing to learn!

Funding – Graduate Research Associate (GRA) appointments and benefits. Start date for both positions can be as early as SP2020.

Application Process & Deadlines – Please email a cover letter describing relevant experience and a CV to Professor Carolin Fink (fink.242@osu.edu). Review of applications will begin immediately. Both positions will remain open until filled.

Contact: Carolin Fink
Welding Engineering
Department of Materials Science and Engineering
1248 Arthur E. Adams Drive
Columbus, OH 42331
(614) 264 8177
fink.242@osu.edu
http://u.osu.edu/weldcracking/