

Zachary Bryan

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Graduate Institution: University of Florida

Location: Gainesville, Florida

Graduate Discipline: Metallurgical Engineering

Hometown: Orlando, Florida

Research Interests:

My research involves studying anisotropic materials through the use of an experimental approach that is informed by computational thermodynamics. The computational thermodynamics aspect of my research allows me to calculate and predict underlying phase transformations in these unique materials before performing experiments. Currently, I am designing a room temperature formable magnesium-based alloy to replace more traditional, higher density alloys in lightweight structural applications. In pursuit of this goal, I am developing methods of nanoparticle incorporation and dispersion into the magnesium matrix because research has indicated that the nanoparticles may activate higher order slip systems and consequently increase formability. Additionally, formability has been improved through various methods of texture modification. Thus, I am using a factorial design to study the effect of different microstructural parameters (e.g. grain size, precipitate nature) on the texture formed after deformation and recrystallization. Ultimately, the long-term goal of this research project is to use the knowledge gained from these experiments to design a room temperature formable magnesium alloy.

About me:

After graduation, I plan to pursue a career in academia, using my materials design experience to discover, design, and synthesize innovative multifunctional materials. I am an active member of Materials Advantage, Florida Engineering Society, and have been treasurer for the UF Materials Research Society Chapter for the past three years. I have also been active in K-12 outreach activities through Engineer's Week at UF and the Materials Science and Engineering Department's Hands-On Materials Outreach Program. I am an avid Gator athletics fan and enjoy bowling.



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