

MSE SEMINAR

March 24, 2017

113 McBryde Hall, 3:30 – 4:30 PM

Refreshments at 3:00 PM

David Garcia

Graduate Student

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“Mesoscale Design of Materials Structures By Additive Manufacturing”

Abstract:

Additive manufacturing is a rapidly developing technology that is recognized for facilitating the design of small, intricate structures much faster than traditional processing methods. The capabilities of intricate design can extend even further upon taking into consideration multi-material manufacturing. Using additive manufacturing techniques it is possible to fabricate parts with controlled composition and property gradients. This allows for the optimal design of material distribution in order to successfully survive the loading conditions, while simultaneously reducing cost and meeting other application specific constraints. This research seeks to investigate the limitations of additive manufacturing in developing multi-material structures by identifying, modeling, manufacturing, and optimizing the distribution in several structures. By comparing *in situ* materials characterization data to finite element analysis simulations, it is possible to develop predictive models for multi-material parts and allow for the design of optimized multifunctional structures.

Biosketch:

David Garcia is currently pursuing his Master’s Degree in Materials Science and Engineering through the accelerated master’s program. He earned his B.S. in MSE from Virginia Tech in 2016. His past experience includes semiconductor fabrication and modeling as well as several additive manufacturing projects. He is currently working under the guidance of Dr. Hang Yu to investigate advanced manufacturing techniques.