

## ***MADE in SC* – A Transformative Program for Research on Advanced Materials**

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This presentation will provide an overview of the research focus of the new NSF EPSCoR RII award titled Materials Assembly and Design Excellence in South Carolina (*MADE in SC*). The mission of *MADE in SC* is to pursue advanced interdisciplinary research, education, and infrastructure development, leading to discovery of new materials that would stimulate workforce development and economic growth in the region. The focus of the research is to discover and establish new and sustainable approaches for the design and assembly of hierarchical materials at multiple relevant length scales. Specifically, the research is focused on intelligently designed optical and magnetic materials, stimuli-responsive polymeric materials, and interactive biomaterials. *MADE in SC* emphasizes the emerging paradigm of materials discovery and development, articulated in the national Materials Genome Initiative.

Research is being conducted in three independent, but synergistic thrust areas: *intelligently designed optical and magnetic materials (Thrust 1)*; *stimuli-responsive polymeric materials (Thrust 2)*; and *interactive biomaterials (Thrust 3)*. The experimental research is supported by and integrated with a common multiscale *Modeling and Computational Core* to accelerate and guide the synthesis, assembly, and understanding of the structure-property relationships of inorganic and organic materials at multiple length scales (atomic to continuum). Due to the project team's broad-based expertise in advanced materials and the associated investment, *MADE in SC* will be well-positioned to tackle complex problems with transformative impacts and guide future directions of materials research.

In addition to high-impact scientific discoveries, this collaborative initiative will provide a significant translational impact on SC educational institutions by increasing the pipeline of highly trained students at all levels. Inasmuch as advanced materials are critical to a broad range of technologies and industries, *MADE in SC* will play a critical role in the economic growth and vitality of the state and nation. The outcome of this investment by NSF will position *MADE in SC* among the most capable academic organizations for materials research in the world.