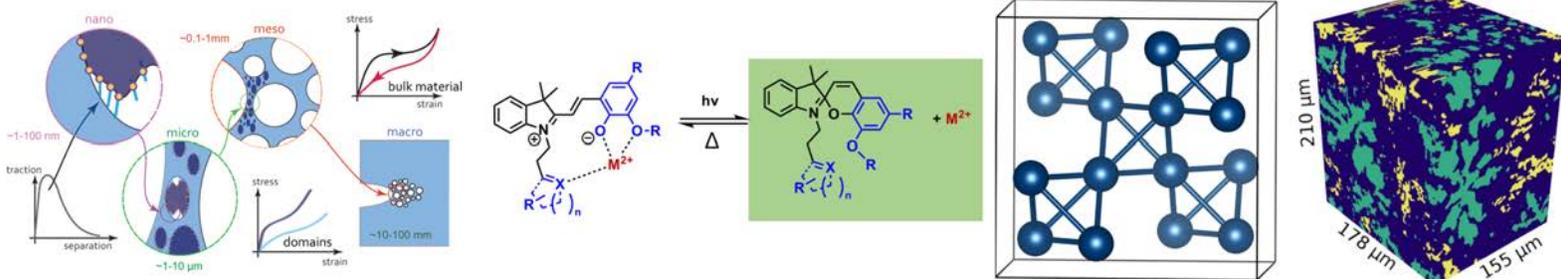


The UCSB MRSEC is a collaborative research and training infrastructure driving a portfolio of transformative materials research while nurturing a diverse group of future leaders in materials research. The three key components of the MRSEC: **IRG and Seed Research, Education and Outreach, and Shared Experimental Facilities**, work in a synergistic and integrative manner, with a research emphasis on fundamental understanding that has sustained utility and impact beyond the duration of the project, especially through the development of methods and tools.



*Why UCSB?* Materials as a discipline has been central to many research activities at UCSB, serving to unify the physical sciences and engineering. The unusually strong commitment to shared facilities further promotes a culture of collaboration.



Research at the MRSEC is based around three Interdisciplinary Research Groups (IRGs):

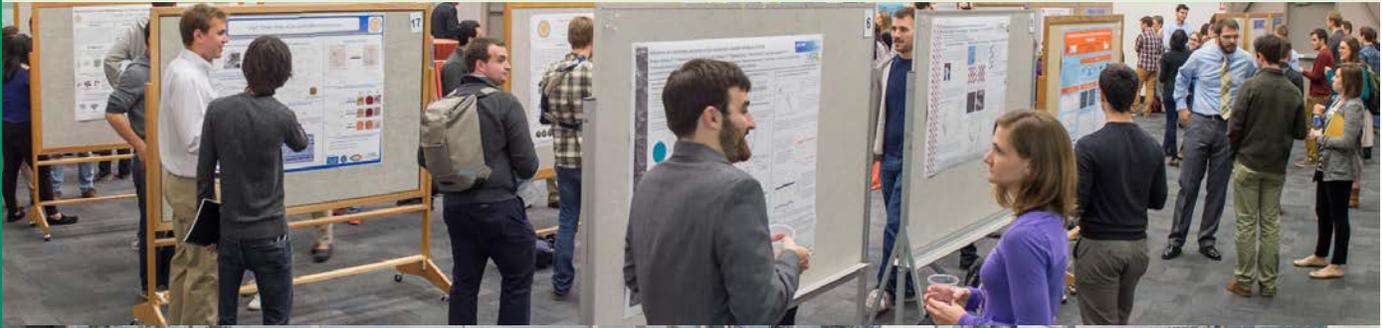
**IRG-1: Magnetic Intermetallic Mesostructures**, aims to develop unprecedented control over the couplings between strain, magnetization, and temperature in single- and multiphase intermetallic compounds to eventually advance technologies including actuation and solid-state refrigeration

**IRG-2: Polymeric Ionic Liquids**, develops novel polymeric ionic liquid chemistries, including an understanding of self-assembly and ion transport in these materials, incorporating the emergent properties of multi-valent ion conductivity, light-driven adaptive mechanics, switchable redox activity, and magnetic response.

**IRG-3: Resilient Multiphase Soft Materials**, aims to discover how material assembly and innovative processing can help establish the foundational design rules for creating versatile, graded, multiphase soft materials for eventual use applications such as advanced fabrics, packaging, additive manufacturing, and tissue replacements, and as self-shaping, self-healing, and reconfigurable materials platforms.

DIRECTOR: Ram Seshadri + ASSOCIATE DIRECTOR: Ania Jayich + WEB: <http://www.mrl.ucsb.edu>

Seed Projects, announced annually, allow the UCSB MRSEC to induct new, especially early-career, members taking risks to venture into exciting, interdisciplinary research directions.



Strong emphasis on world-class Shared Experimental and Computational Facilities support research, enhance industrial outreach; including to the local start-up community, and contribute to the educational mission.



UCSB MRSEC scientists and education staff are dedicated to improving access to science and to building a dynamic and inclusive workforce of scientists and engineers.

The portfolio of education programs has a core focus on undergraduate research opportunities, including an internship program in start-up companies.

Outreach to K-12 students, support of teachers to create relevant curricula, and outreach to the broader community are central to MRSEC Education and Outreach activities.

The UCSB MRSEC also works to increase public interest in, and awareness of science, and to enhance interaction between scientists and the public.

Broadening participation at all stakeholders levels, consistent with UCSB's Hispanic Serving Institution status underpins diversity efforts within the MRSEC.