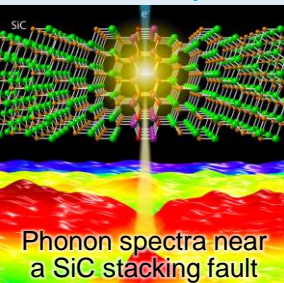




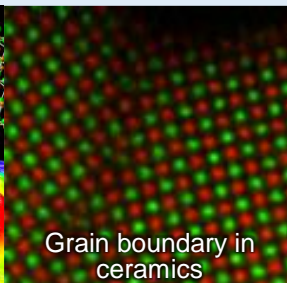
CCAM

Center for Complex and Active Materials

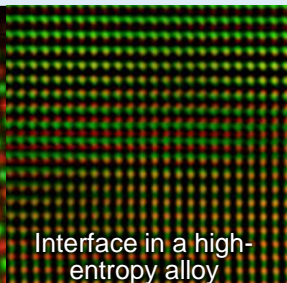
An NSF MRSEC at UCI



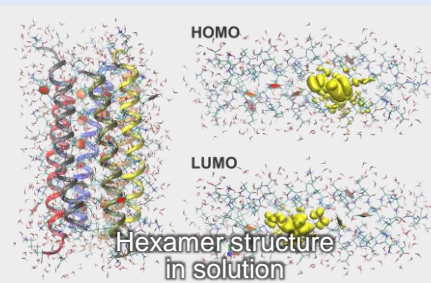
Phonon spectra near a SiC stacking fault



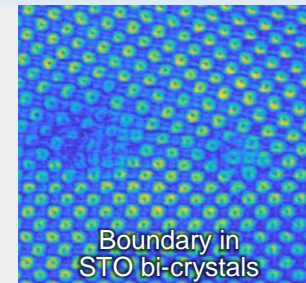
Grain boundary in ceramics



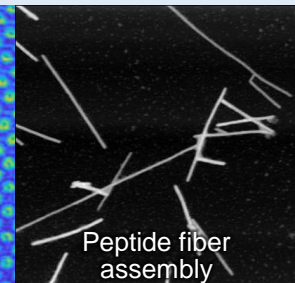
Interface in a high-entropy alloy



Hexamer structure in solution



Boundary in STO bi-crystals



Peptide fiber assembly

The primary mission of the UCI MRSEC is to establish foundational knowledge in materials science and engineering of new classes of materials offering unique and broad functionality.

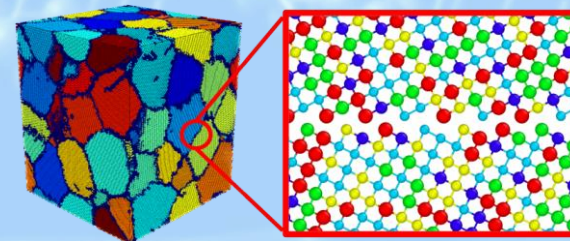
Advancing the design, fundamental knowledge, and development of novel complex and active materials through interdisciplinary research, education, and outreach

RESEARCH

The Center drives interdisciplinary teams to work together to create materials with complex chemical compositions and dynamic, responsive soft materials (IRGs) and engages new participants in emergent research directions (seed projects). The Center continues to progress toward making new material discoveries and scientific breakthroughs through strong collaboration among researchers and recruiting/training of next generation materials scientists.

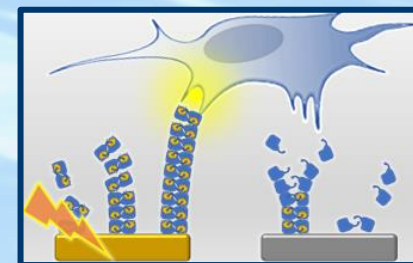
IRG-1: Complex Concentrated Materials

Develops foundational interface science for complex concentrated metals and ceramics to establish the structure-property relationships to guide the design of the new complex materials for desirable applications.



IRG-2: Bio-inspired Active Materials

Develops self-assembly strategies to study fundamental charge-matter interactions in supramolecular “living” materials to lay the groundwork for a new class of bioinspired materials.





EDUCATION ■ OUTREACH ■ PARTNERSHIP

Materials REU:

Engages REU (Research Experiences for Undergraduates) participants in novel research experience by matching with CCAM faculty and graduate student mentors who guide and oversee students.

Junior Research Fellows (JRF) Program:

Supports a cohort of JRF, composed of graduate students and postdoctoral fellows, with structured activities, a formalized mentoring process, and the development of strong scientific networks.

Future Materials (K-14):

Disseminates modules to K-12 teachers demonstrating science and technology innovations (Partnership with OC-STEM).

Materials-SPIRE:

Engages high school and community college students to get hands-on experience in the fundamentals of materials research via activities and mentoring by CCAM members.

Materials Innovation Slam:

Showcases and awards the best elevator pitch by CCAM JRF, including materials researchers at UCI, partners, and neighboring institutions.

Short Course in Materials Characterization:

Showcases the programs and advanced technique innovations from CCAM members and industry partners.

Partnerships:

Accelerates research discoveries and innovations through collaborations with national laboratories, international collaborations, and partnership with industries.

“ *The Center’s team benefits from a strong interplay among investigators who are experts in materials design, simulation, synthesis, and advanced characterization. We aim to establish a major hub for materials discovery and innovation in the Southern California academe-industry eco-system.* ”



Xiaoqing Pan, CCAM Director

More information about research, education & outreach, facilities, and partnerships is available at: ccam.uci.edu
 Support for CCAM is provided under the NSF grant DMR-2011967.



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