

Center for the Science of Synthesis Across Scales (CSSAS)

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MISSION: Harness the complex functionality of hierarchical materials by mastering the design of high-information-content macromolecular building blocks that predictively self-assemble into responsive, reconfigurable, self-healing materials, and direct the formation and organization of inorganic components for complex energy functions.

RESEARCH PLAN: CSSAS will predict how the chemistry and sequence of inorganic, polymer and protein building blocks gives rise to ordered phases; master free energy landscapes to control their assembly into hierarchical and hybrid materials; and access new states of matter through the integration of synthesis, simulations, *in situ* characterization, data science, and AI.

