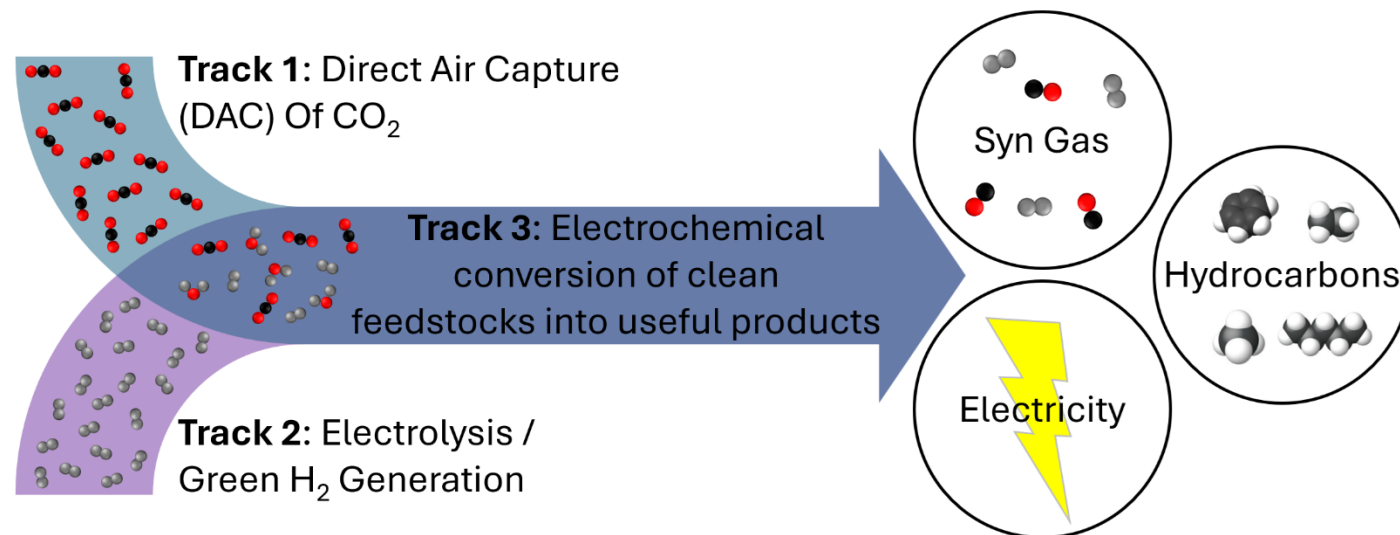


# Understanding and Controlling Accelerated and Gradual Evolution of Materials for Energy (UNCAGE-ME)

Ryan Lively (Georgia Institute of Technology); Class: 2014-2026

**MISSION:** To develop a deep knowledge base in the characterization, prediction, and control of materials evolution in the presence of realistic contaminants, processes, and mixtures to accelerate materials discovery for sustainable production and utilization of  $H_2$  and  $CO_2$ .



**RESEARCH PLAN:** 1) Elucidate the overarching relationships for process-induced structure and property evolution of functional materials with a focus on separations media and (electro)catalysts. 2) Leverage and advance computational and machine learning techniques to enable fundamental molecular and electronic level predictions of materials interacting with complex mixtures of targeted gases and contaminants. 3) Demonstrate accelerated materials discovery for clean energy technologies via process-materials coupled research.

<https://www.efrc.chbe.gatech.edu/>

