U.S. DEPARTMENT OF ENERGY | Office of Science

CENTER FOR SOLAR AND THERMAL ENERGY CONVERSION

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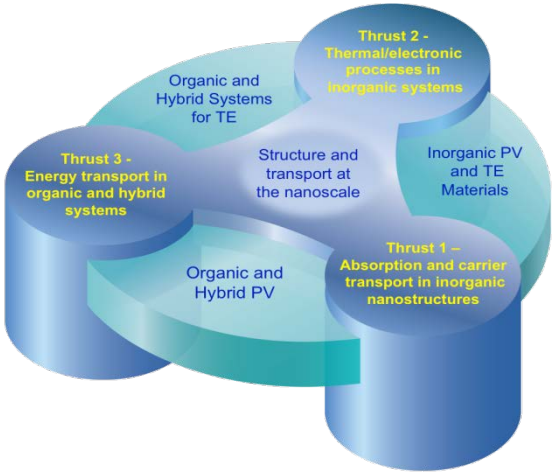
Design and synthesize new materials for high efficiency photovoltaic (PV) and thermoelectric (TE) devices, predicated on new fundamental insights into equilibrium and non-equilibrium processes, including quantum phenomena, that occur in materials over various spatial and temporal scales.



RESEARCH OBJECTIVES AND DIRECTIONS

Research in CSTEC falls in three synergistic and collaborative thrusts, under a unifying concept: *structure and transport at the nanoscale.* Thrust 1: exploit unique quantum effects at the nanoscale to achieve high efficiency solar energy conversion. Thrust 2: to understand and to exploit fundamental mechanisms and processes to achieve high figures of merit in thermoelectric (inorganic, hybrid or molecular) materials. Thrust 3: investigate the molecular and structural origins of energy conversion phenomena in organic and hybrid material systems.