

USF NEXUS INITIATIVE 2019 AWARD RECIPIENT

Michael Cai Wang

Elastocaloric/Thermoelastic Effects via Strain-Induced Phase Transitions in Nanoscale 2D Materials for Next Generation Solid-State Cooling and Refrigeration Technologies

Air conditioning and refrigeration are indispensable necessities for Floridians. Yet while worldwide demand for cooling is expected to soar across our warming planet, we still overwhelmingly rely on energy-intensive, century-old vapor compression technologies. This project will catalyze new collaborations between the research groups of USF's Michael Cai Wang and University of Toronto's Chandra Veer Singh to investigate a new class of nanostructured materials that exhibit exotic elastocaloric/thermoelastic properties. By harnessing the energy transfer as these special materials undergo mechanically induced solid-state phase change, this international collaboration will lead to novel solutions for energy-efficient, solid-state cooling technologies.

Partnership:

Chandra Veer Singh, Ph.D.

University of Toronto (Toronto, Canada)



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