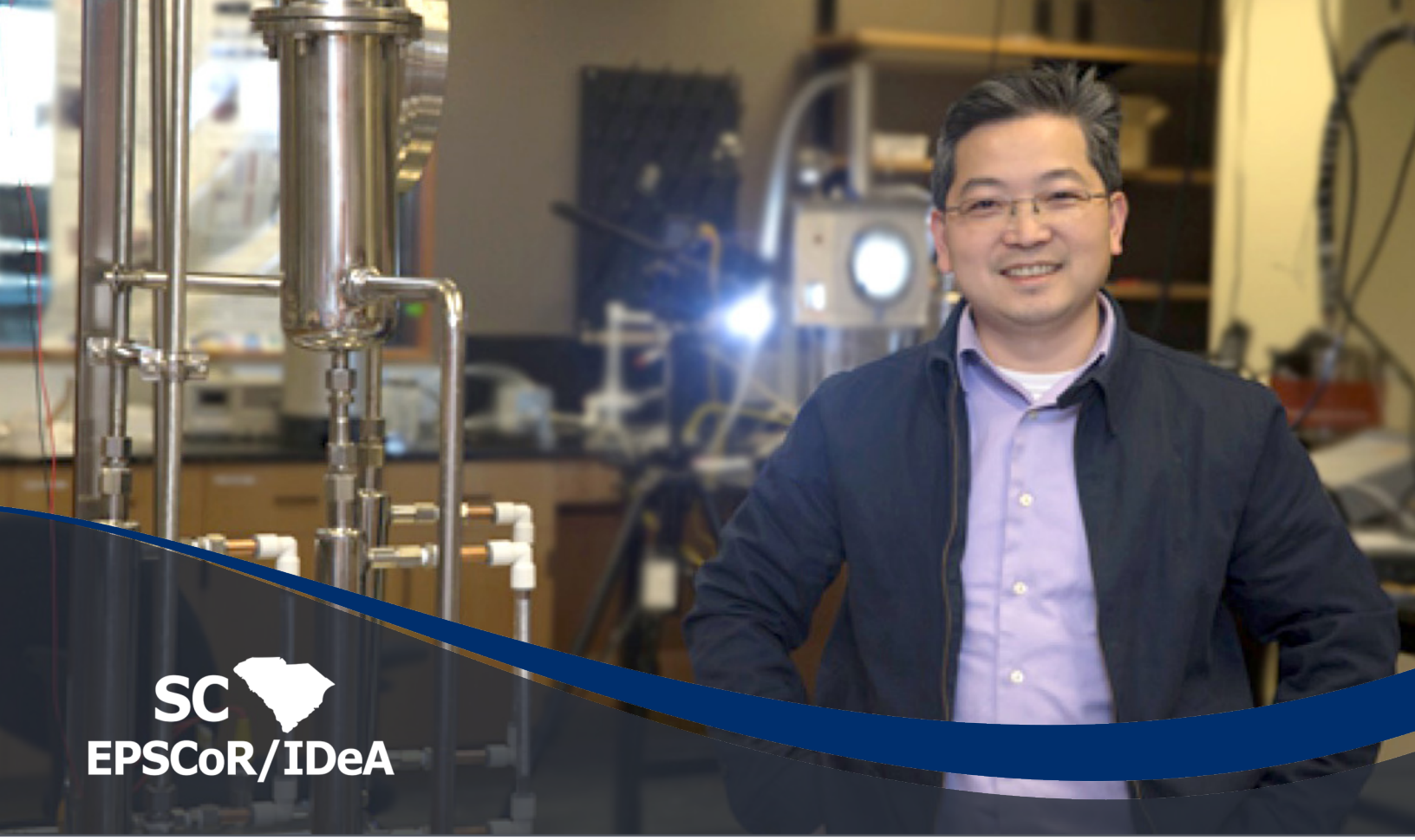


# RESEARCH FOCUS ON DR. CHEN LI

"Compared to existing single-phase loops in space missions, more efficient flow boiling loops will result in significantly decreased size and weight of thermal energy systems," said Dr. Chen Li, USC. "However, boiling performs much worse in microgravity than it does in gravity because bubbles cannot be released owing to the reduction of buoyancy force in space."

Li is working on a project developing an innovative and gravity-insensitive bubble release mechanism to facilitate efficient nucleate boiling and self-stabilized two-phase flow in microgravity using nanowire-coated surfaces. The understandings of two-phase transport at micro/nanoscale developed in this project can advance space power systems, thermal management technologies, liquid handlings in cryogenic and life support systems to support NASA's future space exploration missions.

**PROJECT TITLE**
Explore a Unified, Ultra-efficient, and Gravity-insensitive Flow Boiling Pattern for Space Missions (NNX14AN07A)

**AIM**
This collaborative project between the University of South Carolina and Clemson University aims to address NASA's needs in two-phase technologies by creating a new, unified and ultra-efficient flow boiling pattern that is especially favorable for applications in microgravity.

**AWARD ABSTRACT**
http://scepscoridea.org/research_highlights/PDFs/Li_NASA-Abstract.pdf

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