



College of Engineering
Department of
Mechanical & Industrial Engineering

The Robert W. Courter Seminar Series

3:00-4:00pm, Friday, November 17th, 2023

PFT 1263

Not Your Grandfather's Rocket Engine

by L. Dale Thomas

Director, Alabama Space Grant Consortium

Professor and Eminent Scholar in Systems Engineering

**Department of Industrial and Systems Engineering &
Engineering Management**

The University of Alabama in Huntsville



Propulsion technology is presently enjoying a renaissance. From manufacturing methods to propellants to engine cycles, tomorrow's rocket engines will differ markedly from today's rocket engines. This seminar will describe research on these propulsion advances underway at the Propulsion Research Center, with a focus on Nuclear Thermal Propulsion (NTP). As context, current research and development efforts currently underway within the United States on NTP will be reviewed, with a particular focus on the Demonstration Rocket for Agile Cislunar Operations (DRACO) project, a joint effort of the United States Defense Advanced Projects Agency and the National Aeronautics and Space Administration. The impact of NTP propulsion on both human and scientific exploration of the Solar System will also be discussed. And finally, the topic of advanced NTP propulsion will be addressed, including liquid fuel NTP engines.

***Dr. Dale Thomas** currently serves as a Professor and Eminent Scholar of Systems Engineering in the Department of Industrial and Systems Engineering and Engineering Management at the University of Alabama in Huntsville(UAH). He teaches system engineering students in the art and science of systems architecture and design, systems integration, test, and verification, and systems management. His active research projects include Nuclear Thermal Propulsion, Space Launch System Core Stage Engines, Small Satellites, and Space Systems Model Based Engineering. Dale also serves as director of the Alabama Space Grant Consortium and as deputy director of the UAH Propulsion Research Center. Prior to his retirement from NASA in July 2015, Dale served as the Associate Center Director (Technical) for the NASA Marshall Space Flight Center (MSFC) in Huntsville, Alabama, providing technical leadership for all MSFC spaceflight projects. He had previously served as the Program Manager of the NASA Constellation Program Office at Johnson Space Center in Houston, Texas, leading a nationwide team including all NASA field centers and five prime contractors