“Returning to Earth Safely: Re-Entry from Apollo to the Present”

Graham Candler, PhD
Aerospace Engineering & Mechanics
University of Minnesota

Thursday, December 5
2:30 – 3:30 PM
Brauer Hall, Room 12

Abstract
A spacecraft re-entering the earth’s atmosphere experiences extreme conditions, with flow field temperatures exceeding the surface temperature of the sun. The spacecraft thermal protection system must withstand high heating rates, while not being too heavy or fragile. I will describe the heat shield design approach used for the Apollo missions and the progress that has been made over the past 50 years to understand and model the interaction of high-temperature air with thermal protection system materials. Several examples of recent computational fluid dynamics simulations will be given to illustrate the power of present-day prediction methods.

Biography
Graham V. Candler is the Russell J. Penrose and McKnight Presidential Chair of Aerospace Engineering and Mechanics, University of Minnesota. He received his Ph.D. in Aeronautics and Astronautics from Stanford University in 1988. His current research interests are in the areas of computational fluid dynamics of hypersonic flows, CFD method development, high-temperature nonequilibrium gas dynamics, re-entry and hypersonic aerodynamics, and stability and transition of hypersonic flows.

Faculty, students, and the general public are invited.