Taksha Institute (TI)
School of Science, Technology, Engineering, and Math

TRS132: Seminar on

Introduction to Hypersonic Flows

When:
TBA

Where:
TBA

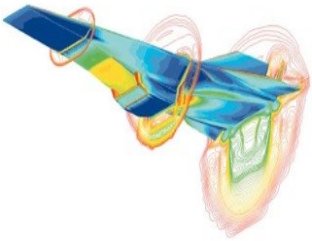
Registration Fee: $TBA

Early Registration:
TBA
Register at:
www.taksha.org

Purpose
This seminar intends to introduce practicing engineers and graduate students to modern aspects of hypersonic flow associated with present and future hypersonic vehicles, including airbreathing propulsion, entry and descent systems, aerodynamic vehicles, and missile systems. The seminar covers fundamental aerothermodynamics, reaction kinetics, and aspects of conventional gas dynamics applied to the extreme environments of hypersonic flight. Modern analysis techniques, including introductory computational fluid dynamics (CFD) of non-equilibrium flow will be presented. The material presented is intended to supply a foundation and a motivation for additional in-depth studies. Participants will be given access to computer codes for thermodynamic properties of high-temperature air, shock waves, and nozzle flows with real gas effects and simplified CFD treatments of blunt bodies, under a variety of hypersonic flow conditions.

See www.taksha.org, for a full description and outline. [Attendance at this event is for personal growth, and entails no promise of employment.]

Who Should Attend? This seminar is geared towards practicing aerospace, mechanical, or system engineers who have been introduced to conventional aerodynamics, fluid dynamics, and propulsion, but not necessarily to those aspects affected by the extreme environment of hypersonic flow. The material is also suitable for graduate students in these fields. The material presented will provide practical approaches for assessing the importance of real gas effects on problems of their interest. It will also introduce non-CFD specialists to the use of CFD analysis in hypersonic flows.



Instructor Profiles:
Dr. Bernard Grossman, Ph.D. (Astronautics), is an educator, researcher, and administrator in the field of aerospace engineering, having served at Virginia Tech since 1982 as both Professor of Aerospace Engineering and Dept. Chair of Aerospace and Ocean Engineering. He is currently Professor Emeritus and continues to teach distance-learning graduate courses in real gas dynamics and hypersonic aerodynamics. He also continues his work as a consultant to the National Institute of Aerospace (NIA) in Hampton, VA, where he was a founding VP from 2002-2012.

Dr. Ajay Kumar, Ph.D. (Aerodynamics), retired in December 2012 after a long career at NASA Langley. He came to Langley from India in 1975 on a National Research Council Fellowship and later joined as an aerospace engineer in 1981. During his tenure at Langley, he rose first to the position of Director, Aerodynamics, Aerothermodynamics, and Acoustics Directorate, and then Director, Systems Analysis and Concepts Directorate. His personal research interests are in the areas of computational fluid dynamics, aerodynamics, aerothermodynamics, and hypersonic airbreathing propulsion.

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