

Einladung

Das Institut für Strömungstechnik und Thermodynamik (ISUT) veranstaltet im Rahmen der DFG-Forschergruppe 1447 "Physicochemical-based models for the prediction of safety-relevant ignition processes" am

Freitag, dem 9. November 2012, ab 11:00 Uhr s.t.

im Gebäude 14, Raum 101 ein

Institutskolloquium,

mit dem Vortrag

**"Formulation and Application of a Sparse-Modes Method
for Turbulence Simulation"**

Referent: **Dr. Alan R. Kerstein** (Consultant, Danville CA, USA),
former Senior Researcher at the Combustion Research Facility, SANDIA
National Laboratory

Abstract: Subgrid closure of coarse-grained simulations of turbulent flows is challenging near walls and for multi-physics applications such as reacting flows. The sparse-modes approach can avoid coarse-grained advancement while reducing cost relative to direct numerical simulation. In the formulation described here, the smallest scales of motion are resolved on three arrays of sub-domains, such that each array fills the flow volume and provides full resolution in one coordinate direction. Within each sub-domain, a stochastic model termed One-Dimensional Turbulence (ODT) simulates turbulent flow advancement in the resolved direction. An additional advection process couples the sub-domains so as to capture large-scale 3D motion without requiring advancement of filtered flow properties. This formulation, termed ODTLES, has been used to simulate decaying homogeneous turbulence and various wall-bounded flows. The ability of this sparse-modes type of approach to capture 3D large-scale features while affordably resolving the wall-normal structure of near-wall flow is demonstrated.

Über Ihre Teilnahme würden wir uns sehr freuen!
Prof. Dominique Thévenin

