

*William F. Powers Lecture*

Tuesday, April 20, 2009

4:00 pm

in Room 303 MAE-A

**Simulation of Scramjet Combustor Flows**

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**Abstract**

The idea for supersonic combustion ramjets was developed in the 1950s, and since then scramjets have gone through several cycles of development. There remain many outstanding questions about scramjet operation and existing engines are not optimized. My research group is working to develop computational methods and physical models to help address these issues and to develop predictive simulations of scramjet engine flows. We use an approach that combines Reynolds-averaged Navier-Stokes turbulence modeling with large-eddy simulations. These wall-modeled large eddy simulations capture the key unsteady mixing physics at a reasonable computational expense. The seminar will discuss the modeling approach, numerical methods, and comparisons with experimental data.

*Refreshments served in 303 MAE-A beginning at 3:50 pm*

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