

Abstract Submitted  
for the DFD19 Meeting of  
The American Physical Society

**The Role of Fluctuating Dissipative Fluxes in the Receptivity of High-Speed Chemically Reacting Boundary Layers in Binary Mixtures to Kinetic Fluctuations**<sup>1</sup> KEVIN LUNA, ANATOLI TUMIN, University of Arizona

— In this talk we present progress toward understanding the role that the numerous fluctuating dissipative fluxes that occur in chemically reacting mixtures play in the kinetic fluctuations boundary layer receptivity problem. These fluctuations are modeled using fluctuating hydrodynamics where the molecular nature of fluids is expressed through stochastic white noise contributions to the dissipative fluxes. While the problem of boundary layer receptivity to kinetic fluctuations has been studied for some time now and its relevance for flight conditions has been established, there are few works that provide the full description of all fluctuating dissipative fluxes that must be modeled when working with non-perfect gasses such as multi-species air models under flight conditions. To make progress toward understanding this wide spectrum of effects, we work with binary mixtures of Oxygen and Nitrogen as a limiting case for modeling air flows. In this talk we present a new model that allows for a quantitative description of these effects in regions where previous results of Tumin and Luna (2018) could not provide a precise description. Using this model, a detailed description of the roles of these fluctuating dissipative fluxes is established.

<sup>1</sup>This work was supported by AFOSR Grant FA9550-15-1-0369

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Date submitted: 31 Jul 2019

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