1077-60-2126 **Yanyan He*** (yhe2@math.fsu.edu), 307 Pennell Circle, Apt. 1, TALLAHASSEE, FL 32310, and **Yousuff Hussaini** and **Jonghoon Bin**. *Uncertainty quantification in the simulation of quasi-one-dimensional nozzle flow.* Preliminary report.

Uncertainty quantification in computational fluid dynamics is crucial due to the inherent variability of the parameters of the physical system and/or an incomplete knowledge of the system embodied in the model. In this presentation, a method is proposed to deal with parametric (aleatory) and model (epistemic) uncertainty in simulations and demonstrated in the case of quasi-one-dimensional flow. Quasi-one-dimensional nozzle problem is a simple example of aerodynamic flows. As this problem possesses an exact exists, it can be used as a test-bed for uncertainty quantification and propagation methods. In a quasi-one-dimensional (convergent-divergent) nozzle shocked flow, the uncertain inlet condition, exit pressure and nozzle geometry impact the shock position. The uncertainty in the shock position is quantified using Dempster-Shafer theory combined with the conventional techniques in probability theory, such as Monte-Carlo method and polynomial chaos. Sensitivity analysis is also carried out to study how the variation of different input parameters affects the uncertainty in the output of our interest. (Received September 21, 2011)