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**Keith J Galvin\***, kgalvin@aphysci.com. *A Synthetic Turbulence Generation Model for Wall-Bounded Shear Flows Based on Resolvent Analysis.*

This talk will focus on some preliminary work that has been undertaken with the aim of developing a new space-time representation of large scale inflow turbulence at the stern of a body of revolution. This new turbulence reconstruction model is largely based on the resolvent analysis framework proposed by Dr. Beverly McKeon of Caltech and Dr. Ati Sharma of University of Southampton, which provides a linear approach to determining the “shapes” of the largest eddies in a wall-bounded turbulent flow, based only on the incompressible NSE and a mean turbulent velocity profile. Once the shapes are determined, the amplitudes of the various eddies are chosen such that the total synthetic flow field satisfies constraints on the mean distribution of turbulent velocity components in the wall-normal direction, as obtained from a general two-equation turbulence model used in a steady RANS code. An initial numerical experiment will be presented indicating good agreement between spectral and correlation properties of the reconstructed turbulent field and experimental data. (Received September 25, 2017)