

1116-41-2013 **Alan M Lattimer*** (alattime@vt.edu), 130 Somerset St, Christiansburg, VA 24073. *Survey of Input-independent Model Reduction Techniques for Nonlinear Dynamical Systems.*

Controlling large-scale non-linear dynamical systems resulting from partial differential equation models is prohibitive and thus requires simplification, for example model reduction. When the objective is to approximate the system output given various inputs, the Iterative Rational Krylov Algorithm (IRKA) has been used with a high degree of success on linear systems by interpolating the transfer function. However, for nonlinear systems, proper orthogonal decomposition (POD) is one of the most common techniques used for reduction. This talk will focus on various ways that input-independent model reduction techniques, such as IRKA, can be modified to reduce nonlinear dynamical systems. Further, we look at how some of these techniques compare favorably to POD for the Burgers' equation. (Received September 21, 2015)