1137-62-323 **Humberto C Godinez*** (hgodinez@lanl.gov), Los Alamos National Laboratory, Applied Mathematics and Plasma Physics, MS B284, Los Alamos, NM 87545. *Application of Koopman Operators for Data Assimilation.*

Data assimilation are methods that combine information from a model and observations to produce a accurate forecast or prediction of the phenomena of interest. There are various assimilation methods ranging from variational to ensemble and Monte Carlo approaches. Common among them is the high computational cost due to model simulation. In order to reduce the computational burden of assimilating data into large-scale systems, spectral decomposition methods are used to to define a subspace that reduces the dimension of the problem. In this talk we use a recent decomposition technique based on the Koopman operator and present how it applied to data assimilation methods. We use the eigenmodes defined by the Koopman operator that represent the non-linear behavior of a dynamical system for the assimilation of data into a shallow water model, and compare its performance with other subspace projections methods. (Received February 06, 2018)