

Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

On the relationship between Koopman Mode Decomposition and Dynamic Mode Decomposition IGOR MEZIC, HASSAN ARBABI, UCSB — We discuss several issues in theory and applications of Koopman modes in fluid mechanics. We show an explicit relationship between a basic – companion matrix - version of the Dynamic Mode Decomposition (DMD) and the Koopman Mode Decomposition (KMD) of dynamical systems, that allows for estimates of validity of approximation of Koopman modes by DMD modes. As a side result we link the recently introduced Generalized Laplace Analysis and the inverse of the Vandermonde matrix. Using these theoretical results, a new method for computation of Koopman modes is presented that avoids inversion of the Vandermonde matrix. Application of this method to analysis of dynamic stall are shown.

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Date submitted: 01 Aug 2014

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