

Abstract Submitted
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Revisit on Proper Orthogonal Decomposition Method MAHDI HOSSEINALI, JOSEPH HALL, University of New Brunswick — Understanding the underlying mechanisms of seemingly random movements in turbulent flows is the most challenging ongoing area of fluid dynamics. Structures with characteristic length scale comparable to the geometry of the flow, so called coherent structures, are assumed to be responsible for the major characteristic behaviors of the flow. These structures then break down to smaller structures and so on until they get damped on viscous level. Identification of coherent structures thus is of paramount importance in fluid dynamics. Among numerous methods POD seems to be the most successful approach to break the sophisticated turbulent field into a series of unbiased modes. Since its introduction to the fluid dynamic community by Lumley the only major improvement was the method of snapshots by Sirovich which is used today on PIV measurements. This talk is aimed to look at different forms of POD kernels which are mostly based on a physical point of view rather than pure mathematics.

Mahdi Hosseinali
University of New Brunswick

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