

Abstract Submitted
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Reconstruction of Coherent Structures from Time Shifted Data

ANDREW NEWMAN, LUCIANO CASTILLO, Texas Tech University — The possibility of extracting coherent structure information from experimental data which has a time shift is considered. The presented techniques are especially applicable to particle image velocimetry (PIV) data collected from large experiments where all PIV planes cannot be collected simultaneously. The method relies on the Proper Orthogonal Decomposition and considers ways to construct POD modes for two adjacent data domains (but with a time shift between them) out of POD modes computed from the individual domains where all data is collected simultaneously. It is first shown that such composite modes exist. Further, it is shown through example how this procedure is done. Lastly, it is shown that the technique is applicable to experimental data though the problem becomes increasingly complex.

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