Data Reduction Methods to Identify Characteristic Scales in Transient, Inhomogeneous Flows JOHN DANTONIO, JOSHUA CAMERON, SCOTT MORRIS, University of Notre Dame — Identification of meaningful spatial and temporal scales in transient, inhomogeneous flows is challenging as many data reduction methods favor spatial over temporal resolution (or vice versa). Spectra of state variables often contain significant broadband content and may be non-stationary. Measurements may be over an inhomogeneous grid or have unknown convergence properties. Correlation and wavelet based methods are presented to identify both spatial and temporal scales from pseudo-random data. These methods are relevant to many separated industrial flows; an application to axial compressor rotating stall will be presented.

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