

Abstract Submitted
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Experimental Analysis of Coherent Structures in the Unsteady Wake of a Circular Cylinder JACOB MORRIDA, Syracuse University — An experimental analysis of the two-dimensional unsteady wake behind a circular cylinder was studied at a range of Reynolds number, and the data was compared with numerical results. The near wake region was analyzed to better understand the evolution of coherent structures, in pursuit of effective control over when and where vortex shedding occurs. For the experiments, a DPIV measurement system was used to collect two-dimensional velocity data. The properties of the wake were determined by Eulerian vortex criteria and Lagrangian coherent structures. Using these methods of analysis, the regions of flow separation and vortex shedding were closely observed to discover when and where the separation occurred. Of particular interest was whether identification of this shedding using the two forms of analysis differed between the experimental and numerical results. The ultimate goal is to objectively identify the shedding phenomenon as a target for flow control in future applications.

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