

Abstract Submitted  
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**Correlating Velocity Information in the Vicinity of Lagrangian Saddle Points to the Spatially and Temporally Resolved Static Pressure Distribution on a Circular Cylinder**<sup>1</sup> MATTHEW ROCKWOOD, MELISSA GREEN, Syracuse University — The locations of Lagrangian saddle points found as the intersections of positive and negative-time Lagrangian coherent structures (LCS) can be used to determine the location and behavior of von Karman vortices shed in the wake of bluff bodies. Correlating the Lagrangian saddle point locations to physical quantities measurable in real-time is critical to the development of a novel input for closed-loop flow control. As a first step towards finding this correlation, the velocity fluctuations in the vicinity of the Lagrangian saddle point are correlated to the fluctuating static pressure at multiple locations on the cylinder surface to determine the lag time between the two quantities at these locations. This offers insight into the specific location and time of past events on the cylinder that influenced the flow field in the vicinity of the Lagrangian saddle point.

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