

Abstract Submitted  
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**Analysis of the stability of jets in crossflow**<sup>1</sup> MARC REGAN, KRISHNAN MAHESH, Univ of Minnesota - Twin Cities — Jets in crossflow (transverse jets) are a canonical fluid flow in which a jet of fluid is injected normal to a crossflow. A high-fidelity, unstructured, incompressible, DNS solver is shown to reproduce the complex shear layer instability seen in low-speed jets in crossflow experiments. A linear stability analysis extension to the unstructured grid DNS solver is developed. An iterative approach is used to solve for the dominant unstable eigenvalues and their associated eigenmodes in the linear regime. Details of the development along with validation studies for parallel flow, and 2-D and 3-D driven cavity flows. Results from ongoing work on applying the methodology to perform global stability analysis of transverse jets will be presented.

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