

Abstract Submitted  
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**A Novel Cross-Wire Anemometry Data Reduction Method<sup>1</sup>**

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— The high temporal resolution and multiple-component capability of hot-wire anemometry has made it a mainstay of unsteady velocity measurement techniques for more than 70 years. Data-reduction techniques for cross-wire measurements, such as the various table methods, have been used for their accuracy in unsteady flows. These methods require interpolation for each data point which, coupled with high frequency acquisition over long sampling periods, makes these methods computationally intensive. A new method for determining velocity from cross-wire voltages has been developed to process measurements of grid turbulence in a convergent section. As with other methods, calibration data taken at known velocities and angles is required for the approach. The new method uses the calibration data to map the measured voltages to a three-dimensional surface that represents the flows velocity. While the development of the surface takes time, the processing time for each data point is reduced. To evaluate the approach, the speed and accuracy of the results is compared to those determined using other cross-wire data-reduction approaches.

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