

# **Experimental analysis and prospective flow diagnostic applications for fluorescence dye-doped micro-particles**

Pietro Maisto

Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University in  
partial fulfillment of the requirements for the degree of

Master of Science  
in  
Aerospace Engineering

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Blacksburg, Virginia

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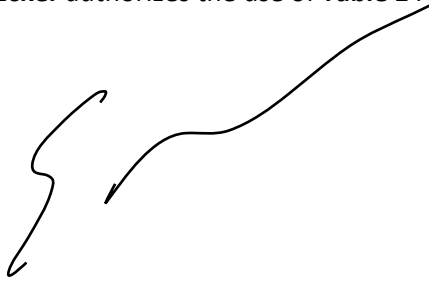
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Description of item under review for fair use: Appendix, Figure 1-Virginia Tech Hot High Speed Jet (HHSJ) facility (left). A schematic of the VT-HHSJ is shown on the right.

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Description of item under review for fair use: Figure 1.2-Fluorescein 27+Kiton Red 620 mix emission spectrum varying with the sample temperature (right). Note the two color band selected for the "ratiometric" technique based on the sensitivity of the bands to the temperature. Source: J. L. Wheeler, P. Tiemsin, P. Danehy, "Characterization of Temperature Sensitive Dye Treated Particles", Research and Technology Directorate Advanced Sensing and Optical Measurement Branch, Aeronautics Research Mission Directorate, August 2010.

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Source: Tiemsin, P. I. & Wohl, C. J. (2012). Refined Synthesis and Characterization of Controlled Diameter, Narrow Size Distribution Microparticles for Aerospace Research Applications (NASA-TM-217591).

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