

Abstract Submitted  
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**Characterization of Scalar Mixing in Dense Gaseous Jets Using X-Ray Computed Tomography**<sup>1</sup> JARED DUNNMON, TAE WOOK KIM, ANTHONY KOVSCEK, REBECCA FAHRIG, MATTHIAS IHME, Stanford Univ — An experimental technique based on X-Ray Computed Tomography (XCT) is used to characterize scalar mixing of gaseous jets at Reynolds numbers up to 20,000. In this study, the mixing of a krypton jet with ambient air is considered. The high radiodensity of the krypton gas enables non-intrusive volumetric measurements of gas density and mixture composition based on spatial variations in x-ray attenuation. Comparisons to theoretical and computational results are presented, and the viability of this diagnostic technique is assessed. Important aspects of x-ray attenuation theory and practice are considered in data processing and their impacts on future development of this technique are discussed.

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