

Abstract Submitted
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Synchrotron X-Ray Three Dimensional microPIV ELIZABETH VOIGT, RODERICK LA FOY, KAMEL FEZZAA, WAH KEAT LEE, PAVLOS VLACHOS, Virginia Tech — A study was completed to validate the ability to use x-ray imaging combined with a tomographic algorithm to reconstruct a time resolved three dimensional flow field. In this study an approximately 1 mm cubed region was imaged using a synchrotron x-ray source. The x-ray beam was split in two, projected through the fluid interrogation volume, and focused onto a scintillating crystal. The scintillators were imaged using two high-speed cameras. A variety of flows were tested using 10 micron hollow glass spheres as tracer particles. The images from the cameras were combined using a tomographic algorithm and the velocity fields were calculated using three dimensional PIV and PTV methods.

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