

Abstract Submitted
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A comparison of positron emission particle tracking (PEPT) methods for analysis of a tube-in-shell heat exchanger CODY WIGGINS, NITANT PATEL, ARTHUR RUGGLES, Univ of Tennessee, Knoxville — A positron emission particle tracking (PEPT) study of a stainless steel tube-in-shell heat exchanger is performed. Studies are performed using two different energy window settings. A new multiple particle tracking technique is introduced and used in this analysis. Results are compared to those obtained with previously established multiple particle tracking technique. Both techniques are found to be capable of flow imaging through opaque surfaces. No significant difference is observed between energy window settings using either method. Results from both methods are found to be qualitatively similar; however, it is observed that the new method exhibits consistently lower measurement uncertainty across the field of view of the scanner and is robust against the adverse effects of stationary particles in the flow field.

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