

Abstract Submitted  
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**Effect of Probe Inserts on the Local Void Fraction in a Bubble Column**<sup>1</sup> ARUSHI TIWARI, THOMAS J. BURTNETT, THEODORE J. HEINDEL, Iowa State University, EXPERIMENTAL MULTIPHASE FLOW LAB TEAM — Bubble columns are found in many process industries where a gas is bubbled through a liquid to promote mixing, separation, and/or reactions. The local void fraction (also referred to as gas holdup or volumetric gas fraction) is an important parameter used to quantify flow conditions, and is one measure used to validate computational fluid dynamic simulations. The local void fraction is commonly measured with an inserted probe, but the presence of a probe can also modify local flow conditions and local void fraction. This study uses X-ray computed tomography to quantify the effect different probe geometries have on the time-average local void fraction. The results indicate the local void fraction is slightly higher when probes are inserted into the bubble column, but the overall void fraction is unaffected.

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Arushi Tiwari  
Iowa State University

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