

Abstract Submitted
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Echo Particle Image Velocimetry in Pipeflow of Liquefied Lignocellulosic Biomass NICHOLAS DEMARCHI, CHRIS WHITE, University of New Hampshire — Echo particle image velocimetry (EPIV) is used to acquire planar fields of velocity in pipeflow of liquefied biomass. The biomass used is acid washed corn stover liquefied by enzymatic hydrolysis. The liquefaction process produces a complex multiphase fluid suspension with a microstructure consisting of insoluble solid particles dispersed within a continuous liquid phase. The solid particles are generally heavier than the liquid phase, non-spherical, and distributed over a wide size range. Batches of liquefied biomass are produced at various mass loadings from 1.5% to 20%, from which samples are withdrawn and used to evaluate the rheology, microstructure, and solid particle settling velocities. Next, EPIV measurements are used to evaluate how the suspension rheology, microstructure, and particle sedimentation affects the flow of liquefied biomass under laminar pipeflow conditions.

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