

Abstract Submitted
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Optical measurements of phase concentration and velocity distributions of a horizontal gas jet in a 2D bubbling fluidized bed ALEXANDER MYCHKOVSKY, STEVEN CECCIO, VOLKER SICK, University of Michigan — Optical measurement techniques are used for spatially and temporally resolved measurements of phase concentrations and velocities in a horizontal gas jet injected in a 2D bubbling fluidized bed. A fiber optic probe has been developed to measure Laser Induced Fluorescence (LIF) signals from an acetone tracer to quantify jet gas concentration and elastic Mie scatter from the bed particles to determine the solids fraction in a localized region. These two optical signals are spectrally separated and therefore enable simultaneous measurements of the two phases. In addition, jet gas and particles velocities are obtained with a Laser Doppler Velocimetry (LDV) system. These measurements yield phase concentration and velocity profiles necessary to characterize the dynamic behavior of gas jets in fluidized beds.

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