

159e Wavelet Analysis of a Circulating Fluidized Bed Optical Probe Data

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Inherent to the operation of a circulating fluidized bed (CFB) in the core-annular regime is the formation and destruction of clusters. Earlier results using the Eulerian-Eulerian model MFI_X (Multiphase Flow with Interphase eXchanges; www.mfix.org) to simulate a CFB in operation at the National Energy Technology Laboratory (NETL) showed accurate prediction of the clustering was critical in predicting the correct pressure drop and solids fluxes. In this paper the authors use wavelet analysis to analyze the time-varying cluster characteristics from optical probe data. Cluster size and frequency at different radial position and operating conditions are investigated from experiment data taken at NETL using nominal 800 micron cork particles. Simulation results using MFI_X and the commercial code Fluent are also analyzed using wavelets and compared to the experimental findings.