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气固两相流中局部颗粒质量流率的测量新方法

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摘要 Previous works have shown that the suction probe cannot be used to accurately measure the upward and downward particle fluxes independently. A new method using a single optical probe to measure the local solid flux is presented. The measurement of upward, downward and net solid fluxes was carried out in a cold model circulating fluidized bed (CFB) unit. The result shows that the profile of the net solid flux is in good agreement with the previous experimental data measured with a suction probe. The comparison between the average solid flux determined with the optical measuring system and the external solid flux was made, and the maximum deviation turned out to be 22%, with the average error being about 6.9%. These confirm that the optical fiber system can be successfully used to measure the upward, downward and net solid fluxes simultaneously by correctly processing the sampling signals obtained from the optical measuring system.

关键词 fluidized bed measuring method optical fiber probe local solid flux

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A New Method for Measurement of Local Solid Flux in Gas-Solid Two-phase Flow

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Key words fluidized bed; measuring method; optical fiber probe; local solid flux

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