

Modeling orthogonal and rectilinear mixed-modality projection of optical tomography for solid-particles concentration measurement

Abstract

In optical tomography, light attenuation/scattering methods have been used to determine average solids concentrations in gas-solids flows. Derived from the Lambert-Beer law, the Mie theory forms the theoretical basis for optical sensor. It states that the intensity of light transmitted through a dilute gas-solids mixture should be exponentially related to the solids concentration in the light beam. In this context, the light transmits continuously and any particle passing through the volume interrogated by a sensor is detected as variation in the level of illumination of the sensor. This paper focused the modeling for a novel mixed-modality of orthogonal and rectilinear projections. A novel image reconstruction algorithm has been applied and also tested on the modeling.

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Optical sensor; Optical tomography