

一种新型网丝传感器优化设计

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摘要:

本文基于COMSOL仿真软件,对新型的网丝传感器进行了仿真研究,并针对原油高含水情况下油分相含率检测,优化设计网丝式传感器结构。根据油滴尺寸、网格细分以及重建图像等问题提出了分块多阈值算法。仿真实验表明,基于分块多阈值算法进行图像重建,明显改善图像质量,提高了油分相含量检测精度。

关键词: 网丝传感器;分块多阈值法;COMSOL;空间分辨率

Optimization Design of A new wire-mesh sensor

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Institution:

Abstract:

In this paper, a simulation research on wire-mesh tomography (WMT) has been developed using software COMSOL. Focusing on the oil phase fraction measurement in oil-water two-phase flow with high water holdup, Author optimized the WMT sensing electrode arrays and according to oil droplet size, mesh subdivision, and image reconstruction proposed block multi-threshold algorithm. The results show that the multi-threshold algorithm can significantly improve image quality and increase measurement accuracy of oil phase fraction.

Keywords: wire-mesh sensor; Block multi-threshold algorithm; COMSOL; Spatial resolution

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