

论文

基于双D光纤传感器的煤粉细度检测研究

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摘要:

基于高浓度颗粒群后向散射接收光强度主要受颗粒分布、波长、折射率影响的理论基础, 研究煤粉细度与后向散射光强度之间的函数关系, 重点研究安装在圆形滚筒上的双D光纤传感器检测煤粉筛余质量的情况, 从而获得不同颗粒群煤粉的后向散射光强度。分析经过一阶滤波算法处理的检测数据, 结果表明: 筛余质量大的煤粉颗粒群, 后向散射光波动较大; 筛余质量逐渐变小时, 检测数据逐渐稳定, 且检测值与煤粉颗粒群分布呈线性关系。

关键词: 双D光纤传感器; 煤粉细度; 后向散射; 煤粉颗粒群; 一阶滤波算法

Pulverized coal fineness detection based on double-D optical sensor

Abstract:

Based on the theory that the received light of the high concentration particle group is mainly influenced by particle distribution, wavelength and refractive index, the functional relation between particle size and backscattering light intensity was studied. The double D optical sensor was settled on the round roller, and how it detected the coal particles' s screen residue was emphasized. After analyzing the detection data disposed by 1 st order filtering algorithm, the results show that the particle group whose screen residue is large, its backscattering fluctuates severerly; when the screen residue turns small, the data become stable, and the detection data are linear with the particle group' s distribution.

Keywords: double D optical sensor; pulverized coal fineness; backscattering; braize particle group; 1 st order filtering algorithm

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