

工程与应用

压裂支撑剂粒径测量分析的新方法

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摘要 为了科学准确评价支撑剂的性能, 采用理论分析和实验的方法, 通过对颗粒数字图像进行二值化处理, 运用链编码技术直接提取图像几何特征的两个算法, 即计算边界点的坐标及边界上两点间距离的坐标标定自动机, 推导了压裂支撑剂粒径测量算法, 实验验证了其粒径均值的求解过程。研究表明, 压裂支撑剂粒径的测量、均值的计算与分析的算法能够成为颗粒图像识别分析系统的理论基础。研究结论突破了传统筛析测量方法, 为计算机图像分析技术的应用奠定了基础。

关键词 [压裂支撑剂](#) [粒径](#) [链编码](#) [自动机](#)

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New method for measurement and analysis of proppant sizing

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Abstract

In order to appraise the performance of proppant scientifically and accurately, both of the theoretical analysis and the experimental method are used by solving binaryzation of the digital image of the particle projection, using the two algorithm of chain code, calculate the coordinates of the border points and coordinate-labeling-automaton of the distance between two points on the border, to obtain image geometric characteristic directly. An algorithm has been inferred for the sizing of fracturing proppant. The solution process for sizing of the fracturing proppant has been confirmed experimentally. The results indicate that the algorithm for the sizing and averaging measurement and analysis can be considered as the rationale for the particle pattern recognition and analysis system. Conclusively, this technology broke through with the sieving methods in measuring, which will provide support for the application of computer image analysis technology.

Key words [fracturing proppant](#) [sizing](#) [chain code](#) [coordinate-labeling-automaton](#)

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