

## عنوان مقاله:

Reconstruction of Geological Images Based on an Adaptive Spatial Domain Filter: An Example to Introduce Quantum Computation to Geosciences

## محل انتشار:

مجله بین المللی معدن و مهندسی زمین, دوره 57, شماره 2 (سال: 1402)

تعداد صفحات اصل مقاله: 12

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## خلاصه مقاله:

Reconstruction of geological images using partial measurement is one of the most important topics in geosciences. In many methods, this is done using training images and very complex models which increase the computational complexity. In the first part of the article, a simple method based on spatial domain filters such as median and mean filter has been presented to reconstruct geological images. One of the most significant characteristics of this method is that it does not need the training image; moreover, its computational complexity is less than the other advanced methods. Via this method, it is easy to reconstruct binary, continuous, and three-dimensional images. The results show that the reconstruction accuracy of the proposed method is also acceptable. In the second part of the article, to introduce quantum computing to geosciences and encourage researchers to work on this issue, a quantum median filter is proposed to reconstruct geological images. According to the results, this method has much less computational complexity than classical methods such as DS. Also, its results are acceptable in terms of reconstruction rate. Due to the high speed of quantum algorithms and the widespread use of quantum computers in the near future, researchers in this field must become more familiar with quantum computing.

## کلمات کلیدی:

Image Reconstruction, Geosciences, Spatial Filter, Computational Complexity, Quantum Computing, Quantum Image Processing

## لینک ثابت مقاله در پایگاه سیویلیکا:

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