

工程与应用

## 基于图论Isoperimetric算法的岩心图像分割

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**摘要** 基于图论的图像分割算法是当前图像分割领域研究的热点, 其中归一化分割(Ncut)是一种典型的图论分割算法。但Ncut分割的速度慢, 分割结果容易受图像的噪声和虚假边缘的影响, 难以应用到实际。为此, 提出一种基于图论的等周(Isoperimetric)改进分割算法。该算法使用解线性方程的方法代替解特征向量的方法、用4-邻接的方法代替全连接, 避免了复杂的空间滤波。该算法运用到岩心图像分割中, 提高了分割的效率, 取得了较好的分割效果。

**关键词** [图论](#) [图像分割](#) [等周算法](#) [岩心图像](#)

分类号

## Core image segmentation algorithm based on graph theory Isoperimetric

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### Abstract

Image segmentation algorithm based on graph theory is the focuses of research in the image segmentation area in recent years, which normalized cut is a typical of graph theory segmentation algorithm. But the normalized cut method has low segmentation speed, often subjects to noise and fake edges, and very difficult to practical applications. Therefore, an improved segmentation method is introduced which is the Isoperimetric algorithm based on graph theory in this paper. The improved algorithm uses the method for solving linear equations instead of the eigenvector methods, uses of 4-adjacent to connect all the alternatives to the method and avoids the complex spatial filtering. This algorithm applies the image segmentation, improves the efficiency of the segmentation and achieves better segmentation results.

**Key words** [graph theory](#) [image segmentation](#) [Isoperimetric algorithm](#) [core image](#)

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