

图形、图像、模式识别

基于平面几何处理的贝氏体组织分割

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收稿日期 2008-5-23 修回日期 2008-8-13 网络版发布日期 2009-9-28 接受日期

摘要 为了保证贝氏体组织识别的准确度, 提出了一种基于平面几何和梯度加掩模的分水岭相结合贝氏体分割技术。首先应用平面几何算法对梯度图像进行预处理。通过考察梯度图像中各像素点与其附近采样点间曲率变化情况, 来判断考察点是否为贝氏体组织, 滤除组织中的非贝氏体。用梯度加掩模的分水岭方法对预处理后的梯度图像进行分割。实验结果证明, 提出的算法有效抑制了非贝氏体组织的影响, 避免了过分割, 提高了贝氏体组织的计算机自动识别的准确性。

关键词 [图像预处理](#) [曲率](#) [距离](#) [分水岭变换](#)

分类号 [TP311](#)

Bainitic microstructure segmentation based on plane geometry

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Abstract

In order to ensure the accuracy of bainitic microstructure identification, a novel image segmentation method based on plane geometry and watershed algorithm is proposed. First the gradient image is preprocessed according to plane geometry algorithm. By examining the curvature change between the image pixel and its neighbor sampling point, estimate the image pixel is the bainite or not. According to this, the nonbainitic microstructure can be removed. Finally, the preprocessed gradient magnitude image is segmented by the watershed transform. Experimental results indicate that this algorithm can effectively inhibit the impact of non-bainitic microstructure, avoid over-segmentation, improve the accuracy of automatic identification.

Key words [image preprocessing](#) [curvature](#) [distance](#) [watershed](#)

DOI: 10.3778/j.issn.1002-8331.2009.27.050

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