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高分辨率SAR图像散射中心特征提取

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Feature Extraction of Scattering Centers in High-resolution SAR Image

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摘要 合成孔径雷达(SAR)目标检测和识别是SAR实用化的瓶颈技术之一，提取有效的目标特征是SAR目标检测与识别的关键环节。高分辨率SAR图像中，目标属性散射中心特征反映了目标散射中心的位置、类型等信息，精确获取目标散射中心属性特征能够提高对目标的检测识别性能。针对SAR目标属性散射中心特征的提取，该文提出了一种基于改进的空间-波数分布(ISWD)的特征提取方法，该方法首先利用ISWD估计散射中心关于频率与方位角的函数，然后利用该函数来获得目标属性散射中心模型参数。最后利用仿真实验验证了方法的有效性。

关键词：　合成孔径雷达　散射中心　特征提取　空间-波数分布

Abstract：　Synthetic Aperture Radar (SAR) targets detection and identification technology is one of the choke points for SAR practical application. Extraction of effective feature is the key of SAR targets detection and identification. The information of SAR target scattering center position and type is reflected by target attribute scattering center feature, so accurately extraction target attribute scattering center feature can improve the performance of SAR target detection and identification. A feature extraction method of SAR target attribute scattering centers based on the Improved Space-Wavenumber Distribution (ISWD) is proposed in this paper. The function of scattering center respected to frequency and aspect is computed using the ISWD, then the target attribute scattering centers model parameters are estimated via this function. The results of the computer simulation experiment show the validity of the method.

Keywords：　SAR　Scattering centers　Feature extraction　Space-Wavenumber Distribution (SWD)

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