

基于时频特征的低分辨雷达微动多目标分辨方法

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Resolving Multiple Targets with Micro-motions Based on Time-frequency feature with Low-resolution Radar

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摘要

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摘要 对同一波束内群目标个数进行判定对于提升低分辨预警雷达性能具有重要的意义。该文根据不同目标微动多普勒特性的差异,提出了利用时频的方法进行微多普勒特征分析实现群目标个数的判定的方法。该算法先利用自适应chirplet变换进行群目标信号拟合,消除交叉项的影响,得到每个目标主要微动频率分量,再根据拟合得到的频率分量呈线性的特点,利用hough变换检测直线数量,从而实现群目标个数的判定。仿真实验表明,该算法可以有效估计群目标内目标个数。

关键词: 雷达目标分辨 自适应chirplet变换 微多普勒

Abstract: Resolving multiple targets in one beam is important to low-resolution radar. A method to resolving multiple targets is proposed using time-frequency transform based on the defference of targets micro-doppler. Adaptive chirplet transform is used to remove across item of signals, the main frequency of each target is got using adaptive chirplet transform, since the main frequency is linear, hough transform is used to detect the numbers of lines, then the numbers of multiple targets in one beam is got. Simulation experiments show that this method can effectively estimate the numbers of multiple targets.

Keywords: Radar target resolving Adaptive chirplet transform Micro-Doppler

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