

论文

基于小波脊频级联特征的雷达辐射源信号识别

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摘要:

为识别复杂体制雷达辐射源信号,提出了一种基于小波脊频级联特征提取的信号识别方法. 该方法采用新的小波原子和脊线检测策略提取信号的脊频特征,并提取其级联特征作为信号识别向量. 仿真结果表明,采用级联特征能有效地识别辐射源信号,当信噪比为5 dB 时,识别率达95%以上. 与传统小波和现有方法相比,所提出的方法具有更好的信号识别效果.

关键词: 小波脊 瞬时频率 辐射源信号识别 小波原子

Radar Emitter Signal Recognition Based on WRFCCF

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Abstract:

In order to identify the advanced radar emitter signals (RES), an automatic recognition approach of signals was proposed. This approach is based on the cascade-feature of the wavelet ridge- frequency (WRF). The new wavelet atom and the detection strategy are used to extract the WRF feature of the RES, and the wavelet ridge-frequency cascade-feature (WRFCCF) is extracted to identify the RES. Simulation results show that the proposed approach can achieve a correct rate of above 95% even when the SNR (signal-to-noise ratio) is as low as 5 dB. Compared with the traditional wavelet and the existing approaches, the proposed approach has a fine recognition effect.

Keywords: wavelet ridge instantaneous frequency emitter signal recognition wavelet atom

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2. 普运伟; 金炜东; 胡来招. 基于瞬时频率二次特征提取的辐射源信号分类 [J]. 西南交通大学学报, 2007,42(3): 1-329

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