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基于曲线拟合的卫星通信信号参数盲估计

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摘要：

针对非协作卫星通信环境，提出了一种卫星通信信号参数盲估计方法。它利用线性调制信号功率谱形状的对称性及其与成型滤波器的关系，基于曲线拟合的思想进行功率谱包络的提取，进而实现载波频率、带宽等参数的盲估计。仿真结果验证了该方法对MPSK、MQAM等常用卫星通信信号的有效性，且能适应较低的信噪比，具有计算量小、易于实现等优点。

关键词： 盲参数估计 曲线拟合 卫星通信信号

Blind parameters estimation of satellite communication signals based on curve fitting

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Abstract:

Aiming at the enviroment of non-cooperative satellite communications, a blind parameter estimation method is presented. By utilizing power spectrum symmetry of linear modulation signals and its relationship with shaping filters, the spectrum envelope is extracted based on curve fitting. Then basic signal parameters, such as carrier frequency and band width (BW), are blindly estimated. It is confirmed by computer simulation results that the algorithm is effective for conventional satellite communication signals at low signal-to-noise ratio (SNR), such as MPSK and MQAM. The proposed algorithm is also easy to implement with low computation complexity.

Keywords: blind parameter estimation   curve fitting   satellite communication signal

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