论文

一种基于空域滤波的空间谱估计方法

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摘要：

本文提出一种基于空域滤波的空间谱估计方法。对阵列进行相互重叠的子阵划分后，通过对子阵运用自适应波束形成方法实现对空间信号的空域滤波及干扰抑制，提高期望信号的信干噪比。提出对阵列中所划分的子阵运用二次组阵的方法，根据子阵间的位置关系以及各个子阵自适应滤波后的输出运用空间谱估计方法在指定的空间区域范围内实现对期望信号的DOA估计。仿真实验表明，相比常规谱估计方法基于空域滤波的空间谱估计方法有效地改善了期望信号所处的电磁环境，进一步提高了DOA估计的精度和抗干扰性能。

关键词： 子阵；波束形成；空间谱估计；MUSIC算法

A Spatial Spectrum Estimation Method Based on the Spatial Filtering Approach

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Abstract:

The paper has proposed a spatial spectrum estimation method based on the spatial filtering approach. After the overlap subarrays are set in the array, the spatial jamming signals have been filtered and restrained using the adaptive beam formed by the subarray and the SINR is increased for the desired signal. Based on the secondary combination of the subarrays, the direction-of-arrivals are estimated with the outputs of the subarrays and the locations of the subarrays using the spatial spectrum estimation method in the desired spatial regions. Simulation results show the spatial spectrum estimation method based on the spatial filtering approach has improved the electromagnetic environment for the desired signal and the estimate accuracy and the anti   jamming ability achieved are better than regular spatial spectrum estimation method.

Keywords: subarray   beam forming   spatial spectrum estimation   MUSIC algorithm

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