

博士论坛

基于声矢量传感器阵的酉MUSIC算法

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摘要 声矢量传感器同时拾取空间同点的声压振速信息, 为阵列信号处理提供了更多的信息。酉MUSIC算法可以降低计算复杂度, 提高方位估计性能。综合二者优点, 提出了基于声矢量传感器阵的酉MUSIC算法。构造了广义转换矩阵, 通过合成复观测数据及其共轭, 实现了协方差矩阵的实值特征分解, 降低了计算量。仿真与湖试结果表明, 与已有算法相比, 该方法具有计算量小和背景噪声低等优点。

关键词 [酉MUSIC](#) [声矢量传感器](#) [阵列信号处理](#) [方位估计](#)

分类号

Unitary MUSIC algorithm based on acoustic vector sensors array

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Abstract

Acoustic vector sensor measures the pressure and particle velocity information of the same spatial point simultaneously, providing more information for array signal processing. The unitary MUSIC algorithm can reduce the computational complexity, improve the performance of bearing estimates. A unitary MUSIC algorithm is proposed for acoustic vector sensors array. A generalized transform matrix is constructed, and the observation data are incorporated with their conjugate, the covariance matrix can be decomposed in real-valued space. Finally simulation and lake trial shows that this algorithm has features of low computational complexity and suppresses background noise.

Key words [unitary MUSIC](#) [acoustic vector sensor](#) [array signal processing](#) [bearing estimates](#)

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