

研究论文

一种新的跳频信号重构方法

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摘要:

研究了噪声环境下跳频信号重构的问题. 首先对接收端跳频信号模型的稀疏性进行了分析, 根据跳频信号的特点, 构建了一种时频原子字典. 在此基础上, 提出了一种基于推广的正则化再加权最小2-范数法算法的跳频信号重构方法. 该方法通过选取合适的正则参数, 在噪声环境下实现了跳频信号的重构. 仿真结果验证了该方法的正确性和有效性.

关键词: 跳频信号 正则化 再加权最小2-范数法算法 稀疏分解 信号重构

Novel reconstruction method for frequency-hopping signals

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Abstract:

The reconstruction of the Frequency Hopping(FH) signal is studied in the noise environment. After analyzing the sparse characteristics of the FH signal at the receiving end, an atomic decomposition is constructed based on the parameters of the FH signal. Then a signal reconstruction method for the FH signal is presented based on the Generalized Regularized FOCUSS Algorithm. By choosing the proper regular parameter, the FH signal is reconstructed in the noise environment. Simulation results demonstrate that the method is correct and effective.

Keywords: frequency-hopping signals regularization FOCUSS algorithm sparse decomposition signal reconstruction

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