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基于Householder多级最小模级联相消器导航接收机空时抗干扰方法

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Interference Suppression Method for Space-time Navigation Receivers Based on Householder Multistage Minimal Module Cascaded Canceller

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摘要 该文针对抑制GPS信号中期望信号方向的冲激毛刺干扰影响问题，提出Householder多级最小模级联相消方法，该方法用具有最小模的样本商作为复权，替代Householder多级维纳滤波器的权值计算，并将其用于GPS信号空时抗干扰处理中。此方法能很好地抑制期望信号方向的冲激毛刺干扰对自适应权值计算的影响，且复杂度低，收敛性能好。计算机仿真结果验证了算法的优良快收敛性能和良好的抑制期望信号方向冲激毛刺干扰影响的能力。

关键词： 阵列信号处理 全球定位系统(GPS) 低复杂度 抗干扰(AJ) 空时(ST)

Abstract: Due to suppression the influence of impulsive noise spikes (outliers) from desired signal direction of arrival in Global Positioning System (GPS) signals, the Householder-based multistage minimal module cascaded canceller is proposed. The method substitutes the weights of the Householder-based multistage Winner filter for the minimal module weights, which have the minimal module of the samples quotient, and adoptes in space-time anti-jamming processing in GPS receiver. The method has the prominent ability of restricting the influence of the impulsive noise spikes (outliers) from desired signal direction of arrival to adaptive weights, and the ability of low complexity, also fast convergence. Computational simulation results indicate the method achieves better fast convergence ability and a good performance in reducing the influence of the impulsive noise spikes (outliers) to adaptive weights.

Keywords: Array signal processing Global Positioning System (GPS) Low complexity Anti-Jamming (AJ) Space-Time (ST)

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