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论文

基于变维卡尔曼滤波的反辐射导弹相参安全诱偏研究

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摘要:

相参诱偏技术相对目前广泛采用的非相参诱偏技术, 可将反辐射导弹安全诱偏至辐射源区域外, 具有很强的实用价值, 但其实现瓶颈在于多点辐射源相位差的精确控制。论文建立两点源反辐射导弹诱偏模型, 分析相参诱偏辐射源相位差与辐射源和反辐射导弹各参数之间的关系, 推导出相参安全诱偏所需要的相位差; 结合反辐射导弹运动模型, 提出利用变维卡尔曼滤波的数据处理方法, 提高反辐射导弹的定位精度, 减少相位差误差。通过仿真, 验证了该方法的有效性。

关键词: 反辐射导弹 相参安全诱偏 相位差误差 变维卡尔曼滤波

Anti-radiation Missile under Coherent Safe Decoy Research Based on VD-Kalman Filter

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Abstract:

Coherent decoy technology can induce ARM outside the area of radiant sources compared with the noncoherent decoy technology widely used now, it has great importance in practicality, but the choke point of utility is the accurate control of phase difference of radiant sources. The model of two radiant sources decoying ARM is built in this paper, relationships between phase difference and the factors of radiant sources and ARM is analyzed, and phase difference needed under coherent safe decoy is deduced. Combined with the movement model of ARM, a data processing method—VD-Kalman filter is proposed to improve the location precision of ARM, decrease the phase difference error. Simulation results demonstrate the effectiveness of the method.

Keywords: ARM Coherent safe decoy Phase difference error; VD-Kalman filter

收稿日期 2009-07-20 修回日期 2009-11-27 网络版发布日期 2010-06-25

DOI:

基金项目:

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