

## 光电对抗与强激光技术

### 高重频激光对激光制导武器的干扰机理分析

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**摘要:** 为了研究高重频激光对激光制导武器的干扰机理, 根据高重频激光干扰原理, 建立了半主动激光制导导引头编码识别模型、时间波门模型、多信号处理模型和干扰信号调制处理模型等相关理论模型, 提出了导引头干扰有效的 $3\sigma$ 判定准则。在此基础上重点研究了多源干扰和信号调制特性对高重频激光干扰效果的影响, 并进行了仿真系统测试。结果表明, 多源干扰和干扰信号频率调制能够有效增强干扰效果, 干扰信号幅值调制对干扰效果改善作用并不明显。该研究结果将为高重频激光干扰效果评估和高重频激光干扰系统应用提供理论参考。

**关键词:** 激光技术 高重频激光 激光导引头 干扰机理 效果评估

## Analysis of interference mechanism of high-frequency laser to laser guided weapons

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**Abstract:** In order to study the interference mechanism of high-frequency laser to laser guided weapons, according to the principle of high-frequency laser interference, a series of related theoretical models such as semi-active laser seeker coded identification model, time door model, multi-signal processing model and interference signal modulation processing model were established. Then the  $3\sigma$  criterion was proposed for interfering the seeker effectively. Based on this, the study of the effect of multi-source interference and signal characteristics of the effect of high repetition frequency laser interference were studied. According to the simulation system testing, the results show that the multi-source interference and interference signal frequency modulation can effectively enhance the interference effect. While the interference effect of the interference signal amplitude modulation is not obvious. The research results will provide the evaluation of high-frequency laser interference effect and provide theoretical references for application of high-frequency laser interference system.

**Keywords:** laser technique high-repetition-rate laser laser seeker jamming mechanism evaluation method

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