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光电系统与工程

基于FSM的高精度光电复合轴跟踪系统研究

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摘要：

为解决大惯量光电跟踪器对高速机动目标的角秒级跟踪问题，设计了以快速控制反射镜作为精级，大惯量跟踪架作为粗级的双探测器型光电复合轴跟踪系统，并对快速控制反射镜和复合轴系统所涉及关键技术进行了分析。通过某模拟航路半实物跟踪试验不超过70μrad的跟踪误差，验证了系统设计的有效性。

关键词： 快速控制反射镜 高精度 光电跟踪系统 粗精轴

High precision electro-optical tracking system based on fast steering mirror

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Abstract:

In order to accurately track highly dynamic targets with a heavy electro-optical tracking system, a coarse and fine axes driven servo system is presented, in which a fast steering mirror is used as fine control axis and conventional gimbals are used as coarse control axes. Some key technologies were discussed. Hardware-in-the-loop simulation indicates that a tacking error of less than 70μrad is obtained, and the feasibility of the system is validated.

Keywords: fast steering mirror；high precision；electro-optical tracking system coarse and fine axes

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