

光电系统与工程

航天遥感器三反同轴系统遮光罩程序自动化设计

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摘要:

航天遥感器三反同轴系统中不经过主镜、次镜直接由物空间经后续系统到达像面的光线是最主要的杂散光来源。利用光路追迹原理讨论抑制该类杂散光的外遮光罩和主、次镜遮光罩的设计方法,给出简化计算公式,并利用CodeV的宏语言编制了自动化设计的程序。最后,结合某遥感器给出遮光罩设计实例,最终采用的遮光罩面遮拦比约为8.3%,并通过仿真分析和外景成像试验进行验证。结果表明,给出的设计方法能够达到消除一次杂光的要求。

关键词: 遥感器 遮光罩 杂光 三反同轴系统

Design of baffle for three-mirror optical system

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Abstract:

The main stray light of three-mirror system is the light directly comes from the object to the tertiary mirror without hitting on the primary and secondary mirror. The designing of baffles to suppress the stray light is discussed, the formula is deduced, and an auto-design CodeV macro is programmed. An example of baffle design for a three mirror system is cited, moreover the image performance is analyzed and confirmed by ray tracing simulation and imaging experiments.

Keywords: remote sensing baffle stray light three-mirror system

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