夜视技术

一种新的热红外图像生成方法研究

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摘要　　针对目标与背景热红外辐射特性的描述是否精确将直接影响到红外导引头对目标的发现、识别和跟踪水平，在分析热红外图像再现技术原理的基础上，按照所需再现热图像的灰度分布特征制成相应透射水平的热图底片，提出了一种利用不同透射能力涂层生成热图像的方法。借助热红外图像再现实验和图像相关系数算法，证明该方法能较好地再现目标以及背景的热红外辐射特征和细节。它不仅可用于热红外导引头和热成像仪性能的检测及评估，同时也为军用目标的热红外隐真和示假方法提供了一种新的技术途径。

关键词　　图像生成　热红外辐射　信息合成

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Research on a new method of thermal IR image generation

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Abstract Based on the principle analysis of thermal IR image reconstruction, thermal image negative of corresponding transmission was made according to gray distribution characters of the required reproduction thermal image，and a new method to generate thermal IR image by coating different transmission films is put forward, for investigating the effect of the description accuracy of the object and background thermal radiation characteristics on the target acquisition, recognition and tracking by IR target seeker. It is verified that this method could reproduce the properties and details of both targets and backgrounds by the thermal IR reproduction experiment and the algorithm of image correlation coefficient. The new method can not only be used in testing and assessing the properties of thermal IR target seekers and high   precision guided weapons, but also can be taken as a new camouflage technique for military targets.

Key words   image generation   IR radiation   information synthesis

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