

微光技术

背照明电子倍增CCD与景物反射光谱匹配系数的研究

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摘要 根据光谱匹配系数表达式, 计算了2种背照明电子倍增CCD(EMCCD)与暗绿色涂层、粗糙混凝土和绿色草木在晴朗星光和满月光条件下的光谱匹配系数并加以比较。其中具有红色增透膜的EMCCD在晴朗星光下与这些景物反射辐射光谱的匹配系数分别为0.3685, 在满月光下为0.7290, 0.7194和0.6294; 具有蓝色增透膜的EMCCD, 匹配系数值相应为0.4233, 0.3910, 0.3180及0.7832, 0.7448, 0.5816。

关键词 [EMCCD](#) [光谱匹配系数](#) [光谱响应](#)

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Matching coefficients for BV-EMCCD and reflective radiation spectra of objects

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Abstract The spectral matching coefficients between two kinds of BV-EMCCDs and dark green paint, rough concrete, green vegetation under clear starlight and full moon were calculated and compared, according to the experimental matching coefficient. The matching coefficients for EMCCD with red-AR and the reflective radiation spectra of these objects are 0.4555, 0.4298 and 0.3685 under clear starlight, and 0.7290, 0.7194 and 0.6294 under full-moon. EMCCD with blue-AR, the matching coefficients are 0.4233, 0.3910 and 0.3180, as well as 0.7832, 0.7448 and 0.5816 respectively. These values can be used to estimate the field performance and optimize the design of night vision devices.

Key words [EMCCD](#) [spectral matching coefficient](#) [spectral response](#)

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