

夜视技术

## 双近贴聚焦微光像增强器分辨力理论极限问题研究

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**摘要** 分辨力和MTF是微光像增强器的2个重要参数。根据线性系统傅里叶频谱理论, 分析了微光像增强器的MTF和分辨力特性。计算出理想条件下, 基于光阴极/MCP/荧光屏3 部件结构以及带内电子增益机制的光阴极/荧光屏2部件结构的近贴聚焦像管的理论极限分辨力。它们分别是 96.6lp/mm和98.1lp/mm。该结果可供人们改进像管MTF及分辨力特性时参考。

**关键词** [微光像增强器](#) [像增强器](#) [微通道板\(MCP\)](#) [近贴聚焦](#) [分辨力](#) [MTF](#) [傅里叶频谱](#)

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## Theoretical resolution limit of double-proximity focusing image intensifiers

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**Abstract** Resolution and MTF are two important parameters of an image intensifier. The characteristics of the two parameters of a double-proximity focusing image intensifier were analyzed by means of several expressions based on the Fourier spectral theory of linear systems. Two theoretical limiting resolutions were obtained by calculation under a series of theoretical and technologic conditions, for both constructive modes of double-proximity focusing image tubes, in which one is a normal mode of photocathode/MCP/phosphor screen, and another is a mode of electron-internal amplification photocathode/phosphor screen. The calculated results are 96.6lp/mm and 98.1lp/mm.

**Key words** [image intensifier](#) [MCP](#) [proximity focusing](#) [resolution](#) [MTF](#) [Fourier spectrum](#)

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