

夜视技术

三代微光像增强器分辨力计算理论模型

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摘要 分辨力和传递函数MTF是微光像增强器的2个重要参数。长期以来, 人们对于三代微光像增强器阴极发出的电子初能量分布没有统一的认识, 从而没有一个公认的分辨力和MTF计算模型。通过理论分析和假设, 给出一定条件下一个分辨力计算模型。把实际测得的第一近贴距、第二近贴距、阴极电压和荧光屏电压等数值代入分辨力计算模型中, 可以得到分辨力理论值。经与实际测量值进行比对, 发现二者偏差值在12.3%以内, 此理论模型基本符合实际需求。该分析方法和所得结果有一定实用价值, 可作为设计三代微光像增强器的技术参考。

关键词 [三代微光像增强器](#) [双近贴](#) [微通道板\(MCP\)](#) [分辨力](#) [MTF](#)

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Theoretical model for resolution calculation of third generation image intensifiers

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Abstract Resolution and MTF are two important parameters for an image intensifier. Up to now, there is no unified understanding on the primary electronic energy distribution from generation III image intensifier cathode, and no well established theoretical model on resolution and MTF. A resolution calculation model under a specific condition was obtained by theoretical analyses and assumptions. The theoretical resolution value was obtained by substituting the measured parameters such as 1st proximity distance, 2nd proximity distance, photocathode voltage and phosphor screen voltage into the resolution calculation model. By comparing it with the measured value, it is found that the value of deviation between the calculated and the measured resolution values is less than 12.3%. The method and results are helpful for people engaged in the design of generation III image intensifier.

Key words [generationIII image intensifier](#) [double-proximity focus](#) [MCP](#) [resolution](#) [MTF](#)

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