

夜视技术

半导体玻璃微通道板的研制

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摘要 介绍了半导体玻璃微通道板的主要性能, 并与传统铅硅酸盐玻璃的相关性能进行了比较。阐述了半导体玻璃的研制工艺, 研究了利用半导体玻璃材料制备微通道板的工艺途径, 开发了靠玻璃本身电导性质而无需氢还原工艺的微通道板, 即半导体玻璃微通道板。研制出孔径为20 μm 、外径为12mm的半导体玻璃微通道板, 实验利用紫外光电法测试了微通道板的增益、闪烁噪声和成像性能。结果表明新型微通道板具有明显的电子增益和低的闪烁噪声, 并且通道表面稳定; 利用磷硅酸盐玻璃材料可以实现体导电微通道板的制备。

关键词 [微通道板](#) [半导体玻璃](#) [电子倍增管](#)

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Development of semiconductor glass microchannel plates

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Abstract The properties of the semiconductor glass microchannel plates (MCPs) are described and compared with traditional glass MCPs. The preparation technique is presented in detail. Moreover, the approach for developing microchannel plates made of semiconductor glass is investigated. The semiconductor glass microchannel plates, whose aperture is 20 μm and the external diameter is 12mm, were fabricated. The gain, scintillation noise and imaging properties of MCP samples were tested with UV optoelectronic system. The experimental results show that the semiconductor microchannel plates can be fabricated with semiconductor glass materials.

Key words [microchannel plate](#) [semiconductor glass](#) [electron multiplier](#)

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