

技术及应用

GaAs光电导辐射探测器响应实验研究

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摘要 实验研究了具有极快响应的SI-LEC GaAs光电导辐射探测器的响应, 测量它对皮秒级脉冲激光的时间响应及对532 nm直流激光的灵敏度。实验结果表明: SI-LEC GaAs光电导辐射探测器时间响应约为100 ps, 与探测器偏压无关, 但受测试系统的影响较大;用中子辐照改性和改进工艺的方法可提高探测器的时间响应;探测器的直流激光响应与偏压则呈线性关系。

关键词 [GaAs探测器](#) [时间响应](#) [灵敏度](#) [中子辐照](#)

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Experimental Study on Response of GaAs Photoconductor as Radiation Detector

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Abstract The response of ultra fast photoconduction detector made of SI-LEC GaAs crystal was studied experimentally. The response time to picoseconds pulse laser and sensitivity to 532 nm direct current laser were obtained for GaAs detector. The experimental results show that the response time of the GaAs detector is about 100 ps and is independent of the bias voltage. However, it is dependent on the conditions of measurement system. The method of neutron irradiation and techniques change can improve the response time of the detector. The relationship between the sensitivity and the bias voltage is linear.

Key words [GaAs detector](#) [response time](#) [sensitivity](#) [neutron irradiation](#)

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