



Optica Applicata 2005(Vol.35), No.3, pp. 611-617

Thermoreflectance study of temperature distribution on the semiconductor laser mirrors

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Keywords

thermoreflectance, semiconductor laser, mirrors, temperature maps

Abstract

In the high-power semiconductor lasers, the surface of the mirror is the key element of the construction, which has the main impact on the reliability and degradation processes. In the case of lasers fabricated with the use of GaAs compounds the highest power emitted by the structure is limited by the catastrophic optical damage (COD) effect due to the increase of temperature on the air-semiconductor edge. The technique which enables examining the temperature distribution on the mirror surface is thermoreflectance. In this paper, we present the technique of temperature mapping on the mirror surface of the high power semiconductor lasers based on the thermoreflectance method.



894.7 kB

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