

Theoretical Investigation of Striped and Non-Striped Broad Area Lasers With Off-Axis Feedback

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Abstract

We report a method to improve the beam quality of broad area lasers by using a V-shaped external cavity formed by two off-axis feedback mirrors that allow to select a single transverse mode with transversally modulated intensity distribution. In the case when one of the two feedback mirrors is absent a spontaneous formation of self-induced transverse population grating leading to a reduction of the lasing threshold is observed. Most favorable conditions for stabilization of a single transverse supermode and creation of a high power and high brightness plane wave traveling in the extended cavity are obtained for equal reflectivities of the two external reflectors.