«Radiation mode structurer of Nd;YAG laser with aberrational thermal lens at longitudinal diode pump»

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Abstract

The paper is directed to the laser beam structure analysis after passing through the aberration thermal lens formed in Nd:YAG active laser crystal under end-pumping with a fiber-coupled laser diode array. The end pump parameters correspond to typical conditions for the high peak power picosecond pulses generation scheme. The analysis of the beam structure is carried out in terms of Laguerre-Gaussian beams superposition, while the basis of the embedded beams is taken as the optimal one. The paper presents the results on the radiation mode composition measurement after passing through a thermal lens, and also the approximation is fulfilled and the experimentally obtained and calculated beam profiles at different pump pulses repetition rates (average power) are analized.