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Extra-cavity laser beam shaping using an Nd: YAG amplifier

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Abstract:

This work proposes a method that can be used to control the transverse profile of the optical intensity distribution of a diode-end-pumped solid-state laser operating with a Gaussian seed beam. The transverse gain profile in an external amplifier was temporally adjusted to control other higher-order intensity distribution. The amplifier is dual pumped by two independent diode lasers. The higher-order intensity distribution profile was created within the amplifier by independently adjusting the dual diodes output powers. This technique will permit synchronised variation of both the output power of the laser and the transverse intensity distribution of a laser beam.