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Characteristics of monolithic multisection distributed-Bragg-reflector master-oscillator power-amplifiers

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Abstract
We report theoretical results on the wavelength stability of a multisection master-oscillator power-amplifier emitting at 1064 nm. We use a traveling wave equation model to calculate the optical output power and spectral maps versus the currents injected into the different sections of the device. The numerical model explains quantitatively the experimental findings, particularly the collapse of the power if the current injected into a control section adjacent to the distributed Bragg reflector laser acting as master oscillator exceeds certain values. We investigate the influence of the reflectivity at the facet of the power amplifier on the laser behavior.

Keywords Multisection DBR · MOPA · Bragg grating · Traveling wave model

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