

ATTRACTOR BEHAVIOR OF CARRIERS POPULATION AND PHOTON-ASSISTED POLARIZATION IN SEMICONDUCTOR QDL

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ABSTRACT

The pump rate is one of control parameters in the quantum dot laser (QDL). In the present work, we study the effect of this parameter on the dynamical characteristics and carrier's population of a CW InGaAs/GaAs semiconductor QDL output. The operation lasing with CW wavelength of $1.3\mu\text{m}$ at room-temperature is including the photon-assisted polarization contribution. We studied the variable attractor's dependence of the delay time, rise time, oscillation region time and photon number on the pump rate.

KEYWORDS: Quantum Dot laser, QD Carrier Populations, Photon-Assisted Polarization, Attractor Behavior