

NUMERICAL SIMULATION OF GAIN SWITCHING INAs/ InP (113) B QUANTUM DOT (QD) LASERS

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Low cost, directly modulated lasers will play a major role in the next generation telecommunication links for uncooled and isolator-free application. As a consequence, semiconductor lasers based on low dimensional heterostructures such as quantum dot (QD) laser are very promising. Indeed, QD structures have attracted a lot of attention in the last decade since they exhibit many interesting and useful properties such as low threshold current, temperature insensitivity, chirpless behavior and optical feedback resistance. Thus, gain switching QD lasers seem to give very shorter pulses. Ultrashort pulse duration, arbitrary repetition rate and sufficiently high peak power with low timing jitter are basic preconditions of ultrafast pulse light sources. As the repetition rate of gain switched laser is not limited by the round trip time in the laser, gain switched lasers have been proposed as an attractive alternative to mode-locked semiconductor lasers. Here, generation of short pulses by gain switching InAs/InP (113) B QD lasers will be investigated and results are compared with those of actively mode-locked quantum dot external cavity lasers. Results will be given later.

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