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# Tailoring the output power of quantum well and quantum dot lasers via pulse shaping of their injection current

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**Abstract :**

We propose a simple method to achieve simple or complicated laser light from semiconductor lasers applied to quantum well and quantum dot semiconductor lasers via the use of injection current pulse that can be fine-tuned. Obtained results can replace those produced from semiconductor lasers by the usual methed used to achieve such goal.

**Keywords** : Quantum well laser , Quantum dot laser, Injection pulse current shaping , Simple and compex laser output signal .

## Introduction :

Over the last decade or so quantum dot semiconductor laser QDSCLs have generated unstoppeble considerable interest as promissing alternatives to quantum well laser QWSCLs for number of reasons, owing to their demonstrably superior performancy characteristics [1-8].Both QWand QD lasers become important part of communication systems especially the former when it comes in the shape of vertical cavity surface emitting laser type since it can be fitted well with optical fibers . For the safe communications, the laser output have to be chaotic to ensure encryption of letters to be send or received,but unfortunately semiconductor laser in general can not show chaos or even the route to chaos since SCLs are candidates of class B lasers where these systems can have two degrees of freedom only because theirs medium polarization relaxes fast in comparison with the field and population of the laser.

For this reason number of techniques have been invented to solve this problem[9].On the other hand special laser pulses some times are required for certain goals such as square pulses, triangular pulses, train of pulses, long pulses, short pulses, etc.

In this article we present simple method to achieve such goals mathematically on the assumption that the suggested techique can be met expiremently. Results are applied to quantum well and quantum dot semiconductor lasers .