

# Simulation and analysis of closeness Tasyrzryb Brmshkhsh fixed optical transistor lasers disparate during long wave

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**Abstract** The invention of Transistor Lasers (TL) in year 2004, made it possible, the creation of an electronic device which works as transistor and laser with two optical and electrical outputs simultaneously. Since this device has important effects on the future of photonic devices, today various researches accomplish on these devices in order to improve their performances. The goal of this project is Analysis, simulation and performance improvement of Transistor lasers. In order to achieve this goal, after an introduction of these devices and a historical review, we introduce an analytical model based on charge control model for transistor lasers. For a  $1.55\mu\text{m}$  fabricated transistor laser with a single quantum well, which is a modern type of transistor lasers, the optical bandwidth will be estimated for the first time. Using these analyses, it will be found that frequency response of this optoelectronic device has some problems which are not very desirable. Finally the effect of change in some parameters of this device on its optical frequency will be achieved and with optimization of these parameters the optical frequency response of this device will be improved.

**Keywords :** Key Words: Transistor Laser, Quantum Well, long Wavelength, Threshold Current Density, Optical Frequency Response, Resonance Peak

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