## The Simulation Analyze of operation of laser diode in linear mode to reach to gain and optimal threshold current

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Abstract In this research we analyse a single mode laser diode device in linear model. Then we indicate the features of laser diode, include: reasonable Vibrations and resonant the controlling in line, high energy output, pulse output, modoulation. For similation of electronical treatment and modeling of fabrication steps of semiconductor device, in this research we use Silvaco TCAD simulation software and the related results, include new graphs of gain variation changes and the current of laser diode is obtained. The results shown that, increasing in gain and optimal the reshold current with respect of our structure.

Keywords: Keywords: Optimal thereshold, Silvaco TCAD, current, lase rdiode, High Power laser diode

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