

**THE PERFORMANCE OF InGaN LASER DIODE CONSISTING OF A SEPARATE CONFINEMENT HETEROSTRUCTURE WITH A MULTIPLE QUANTUM WELL ACTIVE REGION**

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**ABSTRACT**

Low threshold operation of laser diodes depends on the confinement of the injected carriers to the active region. In this study InGaN multi-quantum wells (MQWs) laser diode with modulation doped strained layer superlattices (MD-SLS) as cladding layers and separate confinement heterostructure (SCH) confinement layers was simulated and investigated using ISE-TCAD software simulation program. The optical and electrical properties exhibited significant enhancement as compared to that in InGaN laser diode with bulk AlGaIn cladding layers. Output powers of 73 mW with threshold current of 18.2 mA were obtained. The internal quantum efficiency, laser diode far-field, and the transparency threshold current density were also calculated.

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