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| **Title:** | Optimized High Performance Characteristics of a designed 450 nm InGaN/AlGaN True Blue Laser Considering Different Injection Current | | | |
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| **Abstract:** |  |
| In this work, the effects on the performance characteristics of a In0.1558Ga0.8442N / Al0.0416Ga0.9584N 3QW separate confinement heterostrcture 450 nm true blue edgeemitting laser are presented by considering different injection current. At the temperature of 300 K, the threshold current of the laser is 11 mA. The peak material gain for the designed laser is obtained as 1106 cm-1 and further used for the analysis of the performance characteristics of the designed doubleheterostructure laser for the variation of injection current. The injection current can be applied to the device is at around 12 to 15 times of the threshold current. At the value of injection current 152 mA, the maximum output power of the laser is 256.4 mW, the maximum resonance frequency is 14.5 GHz and the corresponding modulation bandwidth is 25.3 GHz at the temperature of 300 K. | |