

Proposition pour les 2 reviews:

1. Demonstration of a III-nitride vertical-cavity surface-emitting laser with a III-nitride tunnel junction intracavity contact

- **Authors:** J. T. Leonard, E. C. Young, B. P. Yonkee, D. A. Cohen, T. Margalith, S. P. DenBaars, J. S. Speck, S. Nakamura
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 - **Journal:** *Applied Physics Letters*, 2015
 - **DOI:** [10.1063/1.4929944 repository.kaust.edu.sa](#)
 - **Summary:** This study reports on a violet nonpolar III-nitride VCSEL employing a tunnel junction (TJ) intracavity contact. Compared to a similar device using a tin-doped indium oxide (ITO) contact, the TJ VCSEL exhibited a lower threshold current density (~ 3.5 kA/cm² vs. 8 kA/cm²) and higher peak power (~ 550 μ W vs. ~ 80 μ W). The research highlights the advantages of using a TJ intracavity contact in reducing internal losses and improving device performance.
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2. Blue and green GaN-based vertical-cavity surface-emitting lasers with AlInN/GaN DBR

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- **Conference:** *Proceedings of SPIE*, 2021 [photonicsforenergy.spiedigitallibrary.org](#)
- **DOI:** [10.1117/12.2574623 photonicsforenergy.spiedigitallibrary.org](#)
- **Summary:** This paper demonstrates room-temperature continuous-wave operation of milliwatt-class single-mode blue and green VCSELs with epitaxially grown AlInN/GaN distributed Bragg reflectors (DBRs) on c-plane GaN substrates. The blue VCSEL achieved an emission wavelength of 442.3 nm with a threshold current of 0.40 mA and a wall plug efficiency of 13.6%, the highest reported value at the time. The green VCSELs exhibited an emission wavelength of 514.9 nm with a threshold current of 2.8 mA and an optical output power over 1.5 mW. These results indicate significant progress toward the practical use of blue and green VCSELs.