

Linearly Polarized Emission from Elongated Nitride Pyramidal Quantum Dots

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A novel concept with deterministic InGaN quantum dots (QDs) formed on top of GaN pyramids have been fabricated by means of selective area growth employing hot wall MOCVD. Well-defined single emission lines with a sub-meV line width in the blue region have been observed in photo- and cathodo-luminescence measurements performed. Subsequently, elongated GaN pyramids have been formed, resulting in InGaN ridges on top of the asymmetric pyramids, from which excitonic emissions, exhibiting a strong degree of linear polarization, have been monitored. The ability to attain a high polarization degree is originating from the intrinsic III-nitrides valence band structure.

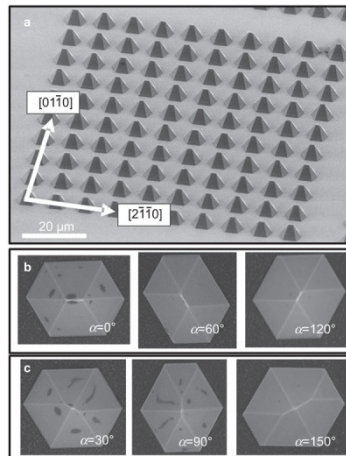


Fig. 1a. An array of elongated pyramids 1b. Pyramids elongated in the are 0° , 60° , and 120° directions.

References

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