



## GaN technology for blue LEDs and lasers

### OPTOELECTRONICS GROUP

### OPTOELECTRONICS LABORATORY

Optoelectronic applications for InGaN/GaN quantum well heterostructures grown by metalorganic chemical vapour deposition (MOCVD) range from the near-UV to the visible spectrum. Major commercial applications are blue and white high brightness LEDs and laser diodes emitting at near UV.

#### RECENT RESULTS AND FUTURE WORK:

We have fabricated GaN high brightness LEDs and optically pumped GaN lasers. Currently the main research effort concentrates on the development of low dislocation density GaN buffers, and the optimisation of InGaN/GaN quantum well growth and the LED structure.

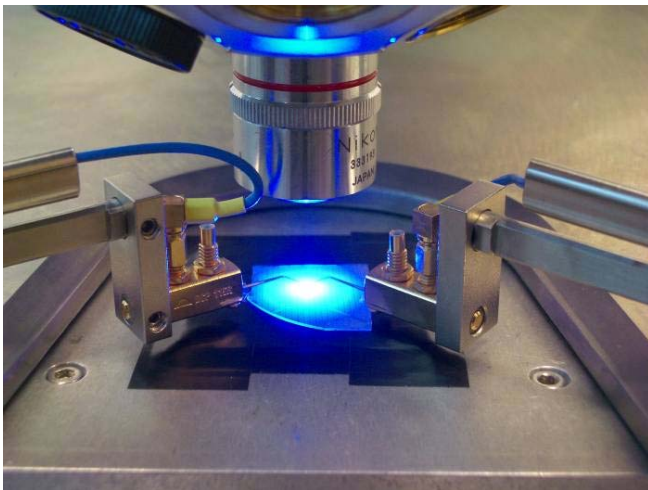


Figure 1: InGaN/GaN MQW based blue HBLD chip.



Figure 2: Optically pumped GaN laser, emitting at 408 nm.

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#### Industrial Partners:

OptoGaN Oy, Lumilaser Oy

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#### Recent Publications:

1. T. Lang, M. Odnoblyudov, V. Bougrov, M. Sopanen, "MOCVD growth of GaN islands by multistep nucleation layer technique", Journal of Crystal Growth, **277**, 64 2005.
2. O. Svensk, MOVPE Growth of Aluminum Gallium Nitride, Master's thesis, HUT 2005.
3. S. Suihkonen, MOVPE Growth of Indium Nitride, Master's thesis, HUT 2004.