

Influence of near-field coupling from Ag surface plasmons on InGaN/GaN quantum-well photoluminescence - DTU Orbit (08/11/2017)

Influence of near-field coupling from Ag surface plasmons on InGaN/GaN quantum-well photoluminescence

We have investigated the borderline between photoluminescence quenching and enhancement of InGaN/GaN quantum-wells due to Ag nanoparticles and their surface plasmon modes. By embedding Ag nanoparticles inside nanohole structures on the p-type layer GaN, luminescence quenching is observed. Increasing the distance between the nanoparticles and quantum-wells has shown to enhance the emission. We have found that the nano-structure geometry of the metal-semiconductor interface in the near-field of the quantum-wells plays a crucial role in determining whether the emitter performance is enhanced or degraded.

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