

Abstract Submitted
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Optimized Energy Transfer from Electron-hole pairs to Eu ions in GaN RUOQIAO WEI, NATALIE HERNANDEZ, Lehigh University, BRANDON MITCHELL, University of Mount Union, YASUFUMI FUJIWARA, Osaka University, VOLKMAR DIEROLF, Lehigh University — Europium doped Gallium Nitride (GaN:Eu) has demonstrated potential for the red-emitting active layer in nitride-based light emitting diodes. Under above band gap excitation, the red emission was shown to increase due to the optimization of crystal growth conditions. This suggests that excitation efficiency had been improved, which would imply that the energy transfer from electron-hole pairs to Eu ions occurred on a faster time-scale. To test this assumption, we performed time-resolved spectroscopy measurements, under *ps*-scale time resolution, on samples with a variety of co-dopants and growth conditions. Results show that the energy is transferred on a time scale faster than *ns* and the excitation efficiency is influenced by the various growth parameters and co-dopants.

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