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Time-resolved photoluminescence study of m-plane GaN thin films JI-HONG PAN, DER-JUN JANG, SHAHAM QUADIR, IKAI LO, Natl Sun Yat Sen Univ — The optical properties and the carrier relaxation of GaN thin films were studied by time-resolved photoluminescence apparatus. The m-plane GaN thin films were grown on GaN buffer layer and γ-$LiAlO_2$ substrates by molecular beam epitaxy with variation of N/Ga ratio. We found that the PL associated with defect is prominent for large N/Ga ratio due to the increasing of stacking faults. The intensity of PL perpendicular to the GaN [0001] direction is more intensive than that of PL parallel to the perpendicular to the GaN [0001] direction. The PL decay times exhibit dependence on the direction of the PL polarizations.

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