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Effect of annealing on *M*-plane GaN thin films grown by PAMBE on tilt-cut LAO substrate[1] YU-CHIAO LIN, IKAI LO, YING-CHIEH WANG, CHENG-DA TSAI, CHEN-CHI YANG, SHUO-TING YOU, Department of Physics, National Sun Yat-Sen University, Kaohsiung, Taiwan, MING-CHI CHOU, Department of Materials and Optoelectronic Science, National Sun Yat-Sen University, Kaohsiung, Taiwan, DEPARTMENT OF MATERIALS AND OPTOELECTRONIC SCIENCE COLLABORATION — The non-polar GaN thin film is a potential candidate for high-efficient photoelectric devices. In this work, we analyzed the characteristics of ***M***-plane GaN thin films which were grown on tilt-cut $LiAlO_2$ (LAO) substrate by plasma-assisted molecular beam epitaxy (PAMBE). A series of samples were grown with different N/Ga flux ratios. The crystal structure and optical property of GaN samples were characterized by X-ray diffraction (XRD), scanning electron microscope (SEM), and photoluminescence (PL) measurements. The peak of 32.2^o in the XRD measurement showed the [1$\underline{1}$00] oriented (***M***-plane) for the GaN samples. To improve the crystal quality, we performed the thermal treatment by rapid thermal annealing (RTA) system on these samples and analyzed the crystal structure, surface morphology and optical property of the samples after thermal treatment. The effect of annealing on the ***M***-plane GaN thin films was under investigation.

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