# Development of an Infrastructure for the Growth and Characterization of GaN on Nitrided Sapphire

Thesis

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# Abstract

A custom ultrahigh vacuum chamber was constructed suitable for study of GaN growth kinetics. Design modifications have been made in this growth chamber to allow for growth of GaN under a wide range of conditions. The ion content from a rf-plasma source was studied and controlled for future nitridation of sapphire experiments. It was shown to be possible to both decrease and increase the ion content from the source. A temperature dependent Hall effect measurement set-up was implemented. The set up was tested using as-grown samples and shown to be an effective way of determining the electrical properties of semiconductors. Future areas of research relying on the infrastructure created herein are outlined.

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