

Abstract Submitted  
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**The Effects of Atmospheric pH on the Transport Properties of Gallium Nitride** ANDREW MCELROY, JEFFREY S. DYCK, Physics Department, John Carroll University, KATHLEEN KASH, Physics Department, Case Western Reserve University — It has been theorized that there exists a thin layer of water molecules on the surface of many materials when in air. This layer is predicted to have an effect on the electrochemical properties of the material. GaN is one of these materials. It has been demonstrated that the optical properties of GaN are affected by the pH of the atmosphere around the sample. In this study the effects of pH on transport properties are tested. A system was developed to test the Hall coefficient and resistivity of samples under different ambients to discover the effects of pH on carrier concentration and Hall mobility of GaN. Thus far, the results show that the pH of the ambient water vapor does not have an effect on the transport properties. This project was funded through the National Science Foundation (DMR-1006132) and the Huntington and Codrington Foundations.

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