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GaN HEMTs JONATHAN W. ANDERSON, KYOUNG-KEUN LEE, EDWIN L. PINER, Texas State Univeristy — Gallium nitride (GaN) has enormous potential for applications in high electron mobility transistors (HEMTs) used in RF and power devices. Intrinsic device properties such as high electron mobility, high breakdown voltage, very high current density, electron confinement in a narrow channel, and high electron velocity in the 2-dimensional electron gas of the HEMT structure are due in large part to the wide band gap of this novel semiconductor material system. This presentation discusses the properties of GaN that make it superior to other semiconductor materials, and outlines the research that will be undertaken in a new program at Texas State University to advance GaN HEMT technology. This program's aim is to further innovate the exceptional performance of GaN through improved material growth processes and epitaxial structure design.

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