



ULTRAHIGH BANDGAP ALGaN CHANNEL HEMTS WITH LOW CONTACT RESISTANCE

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The Invention

UW-Madison researchers have created structures and methods for AlGaN channel high electron mobility transistors (HEMTs). Typically, extreme bandgap AlGaN channel HEMTs show very high ohmic contact resistance, which limits the transistor's performance as a power and RF device. Introducing partial relaxation in the epitaxial structure enables very low contact resistance without compromising the transistor's performance. Moreover, a fully relaxed regrown contact layer grown on a fully strained epitaxial structure of HEMTs reduces the contact resistance further.

Additional Information

For More Information About the Inventors

- [Chirag Gupta](#)
- [Shubhra Pasayat](#)

Publications

- [Vega et al. Modifications in the charge trap landscape in Hf_{0.5}Zr_{0.5}O₂ as a function of oxygen vacancy concentration observed with photoemission electron microscopy. Appl. Phys. Lett. 14 April 2025. 126 \(15\): 152903. <https://doi.org/10.1063/5.0252406>](#)

Tech Fields

- [Semiconductors & Integrated Circuits : Components & materials](#)
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