

2nd World Congress on **Wind and Renewable Energy**
&
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Gallium nitride power electronics for renewable energy systems**Nikita Hari**

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The world deals day in and day out with electrical power conversion- trillions of adjustments are made every second to deliver electricity from our wall outlets to power any of our electrical/electronic devices. These are made possible by systems that do the converting –called ‘Power Electronic Converters’, conventionally built using silicon. On an average, these converters are only 90 percent energy-efficient and the rest is lost as heat, costing us billions every year. And with increasing power density and efficiency requirements along with the environmental pollution control trends of the 21st century, Si devices are failing to meet these challenging demands. My research work aims to address this problem of electric power by exploring a better way of converting this ‘power’ using devices made of the novel material – ‘Gallium Nitride’ which are expected to jump-start the next generation of smaller, faster, denser, cheaper and hence, efficient power converters. Gallium Nitride (GaN) devices are now gaining momentum in the market with 600 V devices getting commercialized and industry keen to zero in on a high-volume application to drive the market. In this talk, I will introduce the GaN power electronics space, its potential applications, review the applicability of these devices in the real world and introduce how using GaN power electronics in renewable energy systems can help the move towards a greener world.

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