Stanford

Bhawani Shankar

Postdoctoral Scholar, Electrical Engineering

Bio

PROFESSIONAL EDUCATION

- Ph.D, Indian Institute of Science (IISc), Bangalore , GaN Power Device Reliability (2019)
- M.E, Birla Institute of Technology and Science (BITS), Pilani , Power Electronics and Drives (2013)
- B.E, Jai Narain Vyas University, Jodhpur , Electronics Engineering (2011)

STANFORD ADVISORS

- Srabanti Chowdhury, Postdoctoral Faculty Sponsor

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

GaN Based Power Devices And Circuits

LAB AFFILIATIONS

- Srabanti Chowdhury, WBG Lab (2/1/2020)

Publications

PUBLICATIONS

- **A discussion on various experimental methods of impact ionization coefficient measurement in GaN** *AIP ADVANCES*
  Ji, D., Zeng, K., Bian, Z., Shankar, B., Gunning, B. P., Binder, A., Dickerson, J. R., Aktas, O., Anderson, T. J., Kaplar, R. J., Chowdhury, S.
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- **Best Practices to Quantify Linearity Performance of GaN HEMTs for Power Amplifier Applications**
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- **Design of Ka-Band Doherty Power Amplifier Using 0.15 mu m GaN on SiC Process Based on Novel Complex Load Modulation**
  Zhou, X., Chowdhury, S., Martinez, R., Shankar, B., IEEE
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- **On-Wafer Investigation of Avalanche Robustness in 1.3 kV GaN-on-GaN P-N Diode Under Unclamped Inductive Switching Stress**
  Shankar, B., Zeng, K., Gunning, B., Lee, K., Martinez, R., Meng, C., Zhou, X., Flicker, J., Binder, A., Dickerson, J., Kaplar, R., Chowdhury, S., IEEE
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- **Distinct Failure Modes of AlGaN/GaN HEMTs Under ESD Conditions** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Shankar, B., Raghavan, S., Shrivastava, M.

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- **Time Dependent Shift in SOA Boundary and Early Breakdown of Epi-Stack in AlGaN/ GaN HEMTs Under Fast Cyclic Transient Stress** *IEEE TRANSACTIONS ON DEVICE AND MATERIALS RELIABILITY*
  Shankar, B., Shikha, S., Singh, A., Kumar, J., Soni, A., Gupta, S. D., Raghavan, S., Shrivastava, M.
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- **Electro-Thermo-Mechanical Reliability of Recessed Barrier AlGaN/GaN Schottky Diodes Under Pulse Switching Conditions** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Shankar, B., Soni, A., Shrivastava, M.
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- **Safe Operating Area of Polarization Super-junction GaN HEMTs and Diodes** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Shankar, B., Shrivastava, M.
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- **ESD Reliability of AlGaN/GaN HEMT Technology** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Shankar, B., Raghavan, S., Shrivastava, M.
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- **First Observations on the Trap-Induced Avalanche Instability and Safe Operating Area Concerns in AlGaN/GaN HEMTs** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Shankar, B., Soni, A., Chandrasekar, H., Raghavan, S., Shrivastava, M.
  2019; 66 (8): 3433–40
- **ESD Behavior of AlGaN/GaN Schottky Diodes** *IEEE TRANSACTIONS ON DEVICE AND MATERIALS RELIABILITY*
  Shankar, B., Gupta, S., Soni, A., Raghavan, S., Shrivastava, M.
  2019; 19 (2): 437–44
- **Positive Threshold Voltage Shift in AlGaN/GaN HEMTs and E-Mode Operation By AlxTi1-xO Based Gate Stack Engineering** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
  Gupta, S., Soni, A., Joshi, V., Kumar, J., Sengupta, R., Khand, H., Shankar, B., Mohan, N., Raghavan, S., Bhat, N., Shrivastava, M.
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- **UV-Assisted Probing of Deep-Level Interface Traps in GaN MISHEMTs and Their Role in Threshold Voltage & Gate Leakage Instabilities**
  Gupta, S., Joshi, V., Shankar, B., Shikha, S., Raghavan, S., Shrivastava, M., IEEE
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- **On the Trap Assisted Stress Induced Safe Operating Area Limits of AlGaN/GaN HEMTs**
  Shankar, B., Soni, A., Gupta, S., Sengupta, R., Khand, H., Mohan, N., Raghavan, S., Shrivastava, M., IEEE
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- **Safe Operating Area (SOA) Reliability of Polarization Super Junction (PSJ) GaN FETs**
  Shankar, B., Soni, A., Gupta, S., Shrivastava, M., IEEE
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- **Trap Assisted Stress Induced ESD Reliability of GaN Schottky Diodes** *40th Electrical Overstress/Electrostatic Discharge Symposium (EOS/ESD)*
  Shankar, B., Singh, R., Sengupta, R., Khand, H., Soni, A., Gupta, S. D., Raghavan, S., Gossner, H., Shrivastava, M.
  IEEE.2018: 1–6
- **(Invited) Design and Reliability of GaN Power HEMT Technology** *Americas International Meeting on Electrochemistry and Solid State Science*
  Shankar, B., Soni, A., Gupta, S. D., Sengupta, R., Khand, H., Mohan, N., Raghavan, S., Bhat, N., Shrivastava, M.
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- **What All We Understand About SOA Reliability of GaN HEMT** *GaN Marathon 2.0*
  Shankar, B., Soni, A., Gupta, S. D., Shrivastava, M.
  University of Padua.2018: 1
- **Time Dependent Early breakdown of AIGaN/GaN Epi Stacks and Shift in SOA Boundary of HEMTs Under Fast Cyclic Transient Stress** *IEEE INTERNATIONAL ELECTRON DEVICES MEETING (IEDM)*
  Shankar, B., Soni, A., Gupta, S. D., Shikha, S., Singh, S., Raghavan, S., Shrivastava, M.

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- **Dependence of Avalanche Breakdown on Surface & Buffer Traps in AlGaN/GaN HEMTs**
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- **ESD Behavior of AlGaN/GaN HEMT on Si: Physical Insights, Design Aspects, Cumulative Degradation and Failure Analysis**
  Shankar, B., Soni, A., Singh, M., Soman, R., Bhat, K. N., Raghavan, S., Bhat, N., Shrivastava, M., IEEE
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- **On the ESD Behavior of AlGaN/GaN Schottky Diodes and Trap Assisted Failure Mechanism**
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- **A Quick Method to Realize and Characterize Bimorph Cantilevers**
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