Synergies between GaN and SiC Power Devices for reliability development and standardization

A worldwide effort is underway to develop standards for wide bandgap devices. Both JEITA and JEDEC have started efforts. JEDEC has formed a new committee, JC70, for GaN and SiC standardization. IRPS is the IEEE reliability conference where reliability physics started and resulted in the qualification procedures we use. Standards need a good technical foundation and an understanding of the applications, which is the focus of the 'WBG reliability synergies and standardization' workshop. By making researchers more aware, it will result in more synergies, better standards and common test equipment and procedures

Moderators

Dr. Sameh Khalil received his M.A.Sc and Ph.D. from the University of Toronto, Canada in Electrical and Computer Engineering in 1999 and 2003, respectively, where he experimentally introduced Lateral Super-Junction Power devices. He is currently a Lead Principal Engineer at Infineon Technologies, PMM Division, where he focuses on GaN Device Reliability assurance and Product Engineering Management and is the project manager of Infineon's Lead HV GaN product. He is currently active in industry-wide efforts for the standardization of GaN Device reliability as a co-chair of JEDEC's newly formed JC70.1.1 GaN Reliability Task Group (previously GaNSPEC Reliability DWG) and GaN Power Device roadmap as a co-chair of ITWR (the International Technology Roadmap of Wide Band-gap Power Semiconductors) GaN Device sub-committee. He was the technical program chair of the device track at WiPDA 2017.

Dr. Aivars Lelis, who received his Ph. D. in Reliability Engineering from the University of Maryland in 2011 and his M.S. degree in Electrical Engineering from the Johns Hopkins University in 2000, leads the Wide Bandgap Device Reliability Physics Team of the Power Conditioning Branch at the U.S. Army Research Laboratory in Adelphi, MD, with a focus on the device reliability physics of SiC and GaN MIS-based power devices, for high-temperature, high-efficiency power conversion and conditioning for advanced Army systems. He was a member of the steering committees for both the GaN Standards for Power Electronic Conversion (GaNSPEC) Devices Working Group (DWG) and SiCSPEC, and is presently the co-chair for the SiC reliability task group under JEDEC JC-70.2