2023 ROCS Workshop

Monday, May 15, 2023 — Room = Grand Cypress ABC

Preceding the CS-MANTECH Conference — Hyatt Regency Grand Cypress, Orlando, Florida

Registration (REG1) and Breakfast (Portico)…… 7:00 – 8:00 AM

Welcome, Opening Remarks, Introduction, Start … Brian Poling, Workshop Chairman ….. **8:00AM**

Session 1: RF GaN Devices …….. Session Chair: Vamsi Putcha, *Ampleon* **……. 8:10 – 10:00 AM**

1.1 Dispersion in GaN/Si for RF Applications.
Bertrand Parvais, *imec*

1.2 Pulsed DC Accelerated Life Test of COTS GaN HEMTs.
Nathan Grant[1], Brian Poling[2], Holly Burton[1], Ryan Gilbert[1], Ronald Wilkerson[3], Jeff Cotton[3], Roland Shaw[3], *KBR[1], Air Force Research Laboratory[2], Accel-RF Instruments Corporation[3]*

1.3 Characterization of ESD Damages In GaN HEMT.
Ni-Wan Fan, Hua Tan, Po Chang, Shiguang Wang, Yuefei Yang, Daniel Hou, Dave Wang
Global Communication Semiconductors

1.4 Reliability Study on HV RF GaN HEMTs.
Holly Burton[1], Brian Poling[2], Nathan Grant[1], Ronald Wilkerson[3], Jeff Cotton[3], Roland Shaw[3]
KBR[1], Air Force Research Laboratory[2], Accel-RF Instruments Corporation[3]

BREAK …… Portico …… **10:00 – 10:20 AM**

Session 2: CS Development and Standards … Session Chair: Randy Lewis, *Northrop Grumman* **… 10:20 AM – 12:20 PM**

2.1 Update on Re-scoped JEDEC sub-committee JC-14.7: Radio Frequency Quality/Reliability.
Don Gajewski, *Wolfspeed*

2.2 Standards for Reliability, Qualification, Test and Datasheet Parameters of Wide Bandgap (SiC and GaN) Power Conversion Devices: JEDEC JC-70 Committee ROCS it!
Tim McDonald, *Infineon*

2.3 Making Sausages - A Personal Recollection Behind the Scenes During the Development of Compound Semiconductors from GaAs to Ga_2O_3.
Dr. Stephen Pearton, *University of Florida*

2.4 Novel Models for the Analysis of the Dynamic Performance of Wide Bandgap Devices.
Dr. Carlo De Santi, *University of Padova*

LUNCH …… Portico …… **12:20 – 1:20 PM**

Session 3: Power and Radiation ..… Session Chair: Justin Parke, *Northrop Grumman* **……**
1:20 PM – 3:30 PM

3.1 Dynamic $R_{DS(on)}$ in GaN HEMTs: Physical Origins and System Design Considerations.
Nick Dellas, *Infineon*

3.2 Radiation Effects on GaN Power Devices.
Dr. Robert Strittmatter, *EPC*

3.3 Terrestrial-Neutron Single-Event Burnout of Wide Bandgap Power Devices.
D.J. Lichtenwalner, S. Ganguly, D.A. Gajewski, S-H Ryu, B. Hull, *Wolfspeed*

3.4 Exploring Single-Event Burnout in β-Ga_2O_3 Schottky Barrier Diodes Under Low-Energy Ion Irradiation.
S. Islam[1], A. S. Senarath[1], D. R. Ball[1], A. Sengupta[1], E. X. Zhang[1], D. M. Fleetwood[1], R. D. Schrimpf[1], E. Farzana[2], N. S. Hendricks[2], and J. S. Speck[2], *Vanderbilt University[1], University of California, Santa Barbara[2]*

3.5 Radiation Hardness Test of Wide Bandgap Power Electronic Devices.
Moinuddin Ahmed[1], Christopher Stankus[1], John Hryn[1], Stephen Wender[2], *Argonne National Laboratory[1], Los Alamos National Laboratory[2]*

ROCS Shocks! / BREAK …… Grand Cypress ABC / Portico …….. **3:30 – 3:50 PM**
Voting and Judging Photo Contest Submissions

Session 4: Tutorials …... Session Chair: Peter Ersland, *MACOM* **…… 3:50 PM – 4:50 PM**

4.1 Reliability Considerations for Advanced Packaging Processes of Compound Semiconductor Devices.
Maxim Serebreni, Samuel Marthinuss, *Northrop Grumman Corporation*

4.2 Qualification Methodology for SLCFET RF Switches.
Justin Parke, *Northrop Grumman Corporation*

ROCS Conclusion (Announcement of ROCS Shocks! Photo Contest Winner) … 4:50 – 5:00 PM

Reliability Of Compound Semiconductors Workshop

Send All Questions, Feedback and ROCS Shocks! Submissions to:
rocs@csmantech.org

EARLY BIRD REGISTRATION PRICING AVAILABLE UNTIL APRIL 24, 2023

Registration for the 2023 ROCS Workshop includes:
Full Day of Compound Semiconductor Reliability Presentations
*A Soft Copy of the Presented Papers * Luncheon and 2 Breaks*

Advance Registration = $240 **On-site Registration = $340**

At-the-door registration will be available during regular conference hours.

For further information, contact:

Brian Poling
AFRL
Workshop Chairman
E-mail = rocs@csmantech.org

