PROGRAM

2006 ROCS Workshop

SUNDAY November 12, 2006, Room 213, San Antonio Convention Center

Preceding the Compound Semiconductor IC Symposium. Across from the Marriott Riverwalk Hotel, San Antonio, Texas

SPONSORED BY JEDEC COMMITTEE JC-14.7, EIA, and in cooperation with the IEEE.

Registration (Cost of Workshop is $200 at the door, make checks payable to JEDEC) . . . . **7:30 AM**

Welcome, Opening Remarks, Introductions, Start Anthony Immorlica, Workshop Chairman . . . **8:00 AM**

SESSION 1 - Reliability in Emerging Technologies/GaN — Sammy Kayali, Session Chair — 8:10 – 10:15 AM

1. **Failure Analysis of X-Band GaN FETs.** J.L. Jimenez[1], Chowdhury[1], Balistreri[1], Lee[1], Saunier[1], Chao[2], Hu[2], Chu[2], Immorlica[2], del Alamo[3], Joh[3] and Shur[4], 1. TriQuint Semiconductor, Texas, 2. BAE, 3. MIT, 4. RPI
2. **Performance Characterization, Repeatability, and Consistency of X-Band GaN. HEMTs Prior to High Temperature RF Reliability Testing.** Roland Shaw, David Sanderlin, and Jansen DeJulio, Accel-RF Corp.
3. **GaN-on-Si Reliability: Comparative Study between Process Platforms.** S. Singhal, T. Li, J.W. Johnson, W. Nagy, R. Therrien, A. Chaudhari, A.W. Hanson, P. Rajagopal, E.L. Piner, K.J. Linthicum, Nitronex Corp.
4. **Effect of RF stress on GaN HEMT device performance.** K. S. Boutros,[1] W.B. Luo,[2] and B. Brar [1], 1 Teledyne Scientific Company, 2 Northrop Grumman Space Technology, Redondo Beach, CA.
5. **Physical Investigation of High-Field Degradation Mechanisms in GaN/AlGaN/GaN HEMTs.** M. Faqir[1], A. Chini[1], Verzellesi[1], Fantini[1], Rampazzo[2], Meneghesso[2], Zanoni[2], Kordos[3], (1) University of Modena, and Reggio Emilia, Italy; (2) University of Padova, Italy, (3) Slovak Academy of Sciences

SESSION 2 - Reliability Topics — Bob Ferro, Session Chair . . . . 10:45 AM – Noon

1. **Reliability assessment of extrinsic defects in SiNx Metal-Insulator-Metal capacitors.** P.J. van der Wel+, J. de Beer+, R.J.M. van Boxtel+, Y.Y. Hsieh*, Y.C. Wang*, +NXP Semiconductors, *WIN Semiconductors.
2. **Analysis of Lead Free Tin Whisker Test Methodology and Characterization.** Helen Cui, Mike Ferrara, RF Micro Devices, Inc. Matthew Mlcak, University of Texas
3. **Natural Failure Mechanisms: Analysis of Actual Field Returns.** Bill Roesch and Steve Brockett, TriQuint Semiconductor, Inc., Hillsboro, Oregon

Lunch Room 217A . . . . **Noon – 1:30 PM**

SESSION 3 - HEMT Reliability — Yi-Jen Chan, Session Chair . . . 1:30 – 2:45 PM

1. **Reliability & Performance of a True Enhancement Mode HIGFET.** Craig Gaw, T. Arnold, Beth Glass & R. Martin, Freescale Semiconductor.
2. **Complete Qualification of an Electron Beam Gate pHEMT Process.** Hei-Ruey Harry Jen, Carlos Gil, Peter Ersland, Shiou Lung Grace Chu, MA-COM, Lowell, MA
3. **The Effect of Gate Current on the Degradation of GaAs PHEMT MMICs.** Y.C. Chou, B-W Luo, R. Lai, D. Leung, Q. Kan, M. Biedenbender, D. Eng, D. Farkas, P. Chin, T. Block, and A. Oki, Northrop Grumman Corp.

SESSION 4 - HBT Reliability — Bill Roesch, Session Chair . . . 3:15 – 4:55 PM

1. **Measurement of Infant Mortality Rate in InGaP/GaAs HBT Technology.** K. W. Alt, Yeats, Hutchinson, Kuhn, Low, Iwamoto, Adamski, Shimon, Shirley, Bonse, Kellert, & D'Avanzo, Agilent Technologies, Inc.
2. **Electroluminescence as an instrument to observe defect generation in InGaP/GaAs HBTs .** R. Pazirandeh, U. Zeimer, J. Würfl, G. Tränkle , Ferdinand-Braun-Institut für Höchstfrequenztechnik.
3. **A Simple, Small-sized Protection Diode Design to Improve ESD Survivability on 2µm InGaP HBT devices.** H.C. Chou, Frank Chou, C.J. Chen, S.C. Chen, and C.S. Wu, WIN Semiconductors Corporation
4. **Defining the safe operating area for HBTs with an InGaP emitter across temperature and current density.** Charles S. Whitman, RFMD.

Late Papers Peter Ersland, Technical Program Chairman . . . . **5:00 PM**

Website: http://www.jedec.org/home/gaas/