

ADVANCE PROGRAM – Formerly the GaAs REL Workshop

2004 ROCS Workshop

SUNDAY October 24, 2004, Preceding the Compound Semiconductor IC Symposium
DeAnza III Room, Portola Plaza Hotel (Doubletree), Monterey, California

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

Registration (\$175 at the door, make checks payable to EIA) **7:30 AM**

Welcome, Opening Remarks, & Start Tony Immorlica and Peter Ersland, Workshop & Program Chairmen . . . **8:00 AM**

SESSION 1 - Reliability Characterization Tutorial Sammy Kayali, Session Chair . . . **8:15 – 9:15 AM**

A Statistical Approach to Characterize the Reliability of Systems Utilizing HBT Devices. Yuan Chen¹, Qing Wang², Sammy Kayali¹ ¹Jet Propulsion Laboratory, California Institute of Technology, Pasadena, ²Department of Electrical and Computer Engineering, California State University, Chico.

SESSION 2 - HBT Reliability Topics Bill Roesch, Session Chair **9:35 – 11:15 AM**

1. Reliability Characterization of MOVPE grown *n*-GaInP/*p*-GaAs Heterojunctions vis-à-vis High Temperature Operation through Photoreflectance Spectroscopy, Transmission Electron Microscopy and Deep Level Transient Spectroscopy. S. Madra, WJ Communications, Inc. (WITHDRAWN)
2. The Impact of Emitter Fingers Layout and Geometry on InGaP HBT Thermal Resistance. Evan F. Yu, Darrell G. Hill, Lisa Zhang and Olin L. Hartin, Microwave & Mixed-Signal Technologies Lab, Freescale Semiconductor, Inc.
3. A New Method to Measure Temperature- and Power-Dependent Thermal Resistance of HBTs. R. Menozzi, University of Parma, Italy, J. Barrett & P. Ersland, M/A-COM–Tyco Electronics, Lowell, MA.
4. Acceleration Parameters and Reliability of SiGe HBTs During Long-Term Forward-Biased Operation. Paul A. Rosenthal, Bruce M. Paine, Neil T. Kubota, and David A. Sunderland, Boeing Satellite Systems Inc.

Lunch - DeAnza II Room **11:30 PM – 1:00 PM**

SESSION 3 - HFETs and pHEMTs Robert Ferro, Session Chair. **1:00 – 2:45 PM**

1. GaN HEMT Reliability. (Invited) E. Piner and K. Lithicum, Nitronex.
2. Minimizing Gate Lag of a Planar High-power GaAs MESFET by Al₂O₃ Passivation and Optimized Gate Process. B. Yang, P.D. Ye, K. Ng, J. Bude, and G. Wilk*, Agere Systems, PA, *ASM America, Phoenix, AZ.
3. The Effect of Elevated Temperature Lifetest on Low Frequency Noise Performance in GaAs PHEMT Dual Gate MMICs. Y.C. Chou, L. Callejo, M. Biedenbender, K. Lee, B. Allen, R. Lai, R. Grundbacher, D. Leung, D. Eng, T. Block and A. Oki. Northrop Grumman Space Technology, Redondo Beach, CA.
4. Degradation Mechanisms of GaAs PHEMTs in High Humidity Conditions. Takayuki Hisaka, Yasuki Aihara, Yoichi Nogami, Hajime Sasaki, Naohito Yoshida and K. Hayashi, Mitsubishi Electric Corporation, Hyogo, Japan

SESSION 4 - Two Terminal Devices Roberto Menozzi, Session Chair. **3:05 – 4:20 PM**

1. Determining Constant Voltage Lifetimes for MIM Capacitors in a GaAs IC Process by a Step Stress Method. Charles Whitman and Michael Meeder, RF Micro Devices, Greensboro, North Carolina.
2. Studying Yield and Reliability Relationships for Metal Defects. William J. Roesch and Dorothy June M. Hamada. TriQuint Semiconductor, Inc., Hillsboro, Oregon.
3. Reliability of GaAs PIN Switches for High Frequency and High Power Applications. Xinxing Yang, Peter Ersland, and David Hoag. Tyco Electronics - M/A –COM, Lowell, MA.

Late Papers Peter Ersland, Session Chair **4:30 PM**

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