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**Study on Inter-Metallic Compound (IMC) at Interface of Pb-Free Solder and Nickel UBM for Mobile Application** .......... 1802
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**Monolithic Low Cost Ka-Band Wilkinson Power Dividers on Flexible Organic Substrates** .................. 1851
Stephen Horst, Swapan Bhattacharya, Manos Tentzeris, and John Papapolymerou – Georgia Institute of Technology

**RF Characterisation and Process Control for Passive Integration Components** .................. 1855
P.J. van der Wel, J.F. Dijkhuis, C. Chanlo, H.K.J. ten Dolle, L.C.M. van den Oever, and R.J. Havens – NXP Semiconductors

**Linking Geometrical and Electrical Parameters of Flex Substrate Vertical Interconnects for 2.5D System-in-Package Design** .................. 1861
Uwe Maass, Christian Richter, Ivan Ndip, Jan Hefer, and Stephan Guttowski – Fraunhofer IZM; David Dmitry Polityko and Herbert Reichl – Technical University, Berlin

**Organic-Based RF Capacitors with Ceramic-Like Properties** .................. 1866
Jin-Hyun Hwang, P. Markondeya Raj, Isaac Robin Abothu, Chong Yoon, Mahadevan Iyer, and Rao Tummala – Georgia Institute of Technology; Hyung-Mi Jung and Jong-Kuk Hong – Samsung Electro-Mechanics Co.

**Low-Loss Flex Circuit Interconnect: Development of Reduced Insertion-Loss Flexible Packaging** .................. 1870
Matthew S. Doyle, Wesley Martin, David Pease, and Trevor Timpane – IBM Corp.

**Metal-Transfer-Micromolded RF Components for System-On-Package (SOP)** .................. 1877
Yanzhu Zhao, Yong-Kyu Yoon, and Mark G. Allen – Georgia Institute of Technology

**A Post-Processing De-Embedding Technique and Effect of TRL Measurement Using an Incorrect Fixturing** .................. 1884
Lih-Tyng Hwang – Motorola; Shun-Meen Kuo – Freescale Semiconductor

**Ultra-Compact Power Conversion Based on a CMOS-Compatible Microfabricated Power Inductor with Minimized Core Losses** .................. 1889
Preston Galle, Xiaosong Wu, Luke Milner, Seong-Hyok Kim, and Mark G. Allen – Georgia Institute of Technology; Peter Johnson, Peter Smeys, Peter Hopper, and Kyuwoon Hwang – National Semiconductor Corp.

**The New Heart Beat of Electronics – Silicon MEMS Oscillators** .................. 1895
Wan-Thai Hsu and Minfan Pai – Discera Inc.

**Design, Integration and Testing of Fluidic Dispensing Control Valve into a DNA/RNA Sample Preparation Microfluidic Package for Lab on a Chip (LOC) Applications** .................. 1900
Ling Xie, C.S. Premachandran, Ser Choong Chong, and Michelle Chew – Institute of Microelectronics

**Study on the Board Level Reliability Test of Package on Package (PoP) with 2nd Level Underfill** .................. 1905
Joon-Yeob Lee, Tae-Kyung Hwang, Jin-Young Kim, Min Yoo, Eun-Sook Sohn, and Ji-Young Chung – Amkor Technology Korea, Inc.; Moody Dreiza – Amkor Technology, Inc.

**Novel Monolayer-Enhanced Non-Conductive Film (NCF) for Ultra-Fine Pitch High Performance Interconnect in Lead-Free Electronics** ........ 1911
Yi Li, Myung Jin Yim, and C.P. Wong – Georgia Institute of Technology

**A Large Area and Two- Dimensional Optical Interconnection Platform** ........ 1916
Sung Hwan Hwang, Mu Hee Cho, Sae-Kyoung Kang, Tae-Woo Lee, and Hyo-Hoon Park – Information and Communications University; Byung Sup Rho – Korea Photonics Technology Institute

**Comparative Analysis of Electrical Performance on Coreless and Standard Flip-Chip Substrate** ........ 1921
Robert Sung, Kevin Chiang, Yu-Po Wang, and C.S. Hsiao – Siliconware Precision Industries Co., Ltd.

**Characterization and Modeling of Thin Film Interface Strength Considering Mode Mixity** ........ 1925
An Xiao, L.G. Wang, L.J. Ernst, and O. Van der Sluis – Delft University of Technology; W.D. Van Driel and G.Q. Zhang – Delft University of Technology, NXP Semiconductors; D.G. Yang – NXP Semiconductors

**Highly Efficient Modeling Automation for Electronic Package Thermal Analysis** ........ 1931
Yuan Xiang Zhang, Lihua Liang, and Yangjian Xia – Zhejiang University of Technology; Yong Liu, Scott Irving, and Timwah Luk – Fairchild Semiconductor Corp.

**Transmission Line Characteristics of a CNT-Based Vertical Interconnect Scheme** ........ 1936
Chee Wee Tan and Jianmin Miao – Nanyang Technological University

**Effect of Poly (4-Styrene Sulfonic Acid) on the Surface Resistivities of Sulfonated Poly (Styrene-B-Ethylenebutylene-B-Styrene) Filled with Multiwalled Carbon Nanotubes (MWNT) for Antistatic Coating and EMI Shielding** ........ 1942
Seon Suk Lee, Il Ho Kang, Sung Hun Jin, Deok Kyu Choi, and Dai Soo Lee – Chonbuk National University

**A Design Methodology for the Yield Enhancement of MEMS Designs with Respect to Process Induced Variations** ........ 1947
Shyam Praveen Vudathu and Rainer Laur – University of Bremen

**High-Seed GDDRIII System Implementation by Channel Signal and Power Integrity Factorial Design** ........ 1953
Jimmy Hsu and Randy Hsiao – VIA Technologies, Inc.

**Low-Cost Hybrid WDM Module Integrated on Planar Lightwave Circuit (PLC) with a Coated WDM Filter Using Passive Alignment Technique** ........ 1959
Jung Woon Lim, Sung Hwan Hwang, Seon Hoon Kim, and Byung Sup Rho – Korea Photonics Technology Institute; Boo-Gyoun Kim – Soongsil University

**The Sn Whisker Growth Evolution of IC Packaging on the PC Board Assembly** ........ 1964
Jeffrey C.B. Lee – IST-Integrated Service Technology; P.C. Chen and C.G. Tyan – YAMI Association

**Label-Free Protein Detection by ZnO Nanowire-Based Bio-Sensors** ........ 1971
Jin Liu, Janagama Goud, P. Markondeya Raj, Mahadevan Iyer, Zhonglin Wang, and Rao R. Tummala – Georgia Institute of Technology

**Paper-Based Ultra-Low-Cost Integrated RFID Tags for Sensing and Tracking Applications** ........ 1977
Amin Rida, Rushi Vyas, Serkan Basat, Antonio Ferrer-Vidal, Li Yang, Swapan K. Bhattacharya, and Manos M. Tentzeris – Georgia Institute of Technology

**Assembling Carbon Nanotube Bundles Using Transfer Process for Fine-Pitch Electrical Interconnect Applications** ........ 1981
Lingbo Zhu, Kyoung-Sik Moon, Brian Bertram, Dennis W. Hess, and C.P. Wong – Georgia Institute of Technology

**A New Carrier Transport Model for Light Emitting Devices with Quantum Well** ................................. 1986
Chin C. Lee – University of California, Irvine

**Characteristics of a Driver Amplifier Integrated 40 Gb/s EML Module** .................................................. 1994
Ho-Gyeong Yun, Kwang-Seong Choi, Yong-Hwan Kwon, Joong-Seon Choe, and Jong-Tae Moon – ETRI

## 39: Friday Student Poster Session

*Chairs: Swapan Bhattacharya – Georgia Institute of Technology; Mark Eblen – Kyocera America, Inc.*

**A Triple Balanced Mixer in Multi-Layer Liquid Crystalline Polymer (LCP) Substrate** .......................... 2000
Wansuk Yun, Venky Sundaram, and Madhavan Swaminathan – Georgia Institute of Technology

**Assembling Carbon Nanotube Films as Thermal Interface Materials** .................................................. 2006
Lingbo Zhu, Dennis W. Hess, and C.P. Wong – Georgia Institute of Technology

**Characterization of Nano-Grained High Aspect Ratio Through-Wafer Copper Interconnect Column** ........................................................................................................................... 2011
Luhua Xu, Pradeep Dixit, John H.L. Pang, and Jianmin Miao – Nanyang Technological University; Xi Zhang and King-Ning Tu – University of California, Los Angeles; Robert Preisser – Atotech, Deutschland GmbH

**Design of On-Chip Microchannel Fluidic Cooling Structures** ............................................................... 2017
Mingyuan Zhao and Z. Rena Huang – Rensselaer Polytechnic Institute

**Fully Embedded High-Q Passives and Band Pass Filters for Low Cost Organic RF SOP (System on Package) Applications** ............................................................................................... 2024
Seung J. Lee, Hwan H. Lee, and Jae Y. Park – Kwangwoon University

**Intelligent Textiles Based on MEMS Technology** .................................................................... 2030
Maozhou Meng and Honghai Zhang – Huazhong University of Science and Technology; Yong Xu – Wayne State University; Sheng Liu – Huazhong University of Science and Technology, Wayne State University

**Vertically Coupled Polymer Microdisk Resonators Fabricated by Photolithography Technique** ....... 2035
Lin Luan, Sang-Yeon Cho, and Nan Marie Jokerst – Duke University