

The Symposium on Polymers for Microelectronics
Winterthur Museum & Gardens, Copeland Lecture Hall
13th Meeting Agenda
May 7-9, 2008

Wednesday, May 7

7:30-5:00pm REGISTRATION at Winterthur Pavilion

SESSION I

Session 1 - 3D, TSV & Novel Applications

SESSION CHAIRS: Tim Daubenspeck, IBM; Ray Fillion, GE

- 8:00-8:45am ***Keynote Address***
3-D Integration, John U. Knickerbocker, IBM T.J. Watson Research Center, Yorktown Heights, NY
- 8:45-9:10am **Silicon-based SIP with Through-wafer Via Formation**; S.Ledain and C.Bunel, NXP Semiconductors Caen, France
- 9:10-9:35am **Polymer Deep Trench Filling for Through Silicon Via technology**; F.Duval, D.Sabuncuoglu Tezcan, B.Swinnen and P.Soussan; IMEC, Leuven, Belgium
- 9:35-10:00am **NanoSpray – a New Deposition Method for Isolating Layers for 3D TSV Applications**; J. Bartel, C.Thanner, M. Wimplinger, M.Wenzl, and G.Oakes; EV Group, St. Florian, Austria
- 10:00-10:25am **BREAK**
- 10:25-10:50am **Electrical, Mechanical, And Reliability Performance of Nano-Micro-Filled Conducting Adhesives For Z-axis Interconnections**; M.Poliks, R.Das, J.Lauffer and V.Markovich; Endicott Interconnect Technologies, Inc., Endicott, New York
- 10:50-11:15am **Optimization of Die Pick and Place Using BCB for 3D stacking**; A.Jourdain, B.Swinnen and E.Beyne; IMEC, Leuven, Belgium
- 11:15-11:40am **Polymer Thin Film Coatings via iCVD**; K.S.Lau; Department of Chemical and Biological Engineering, Drexel University, Philadelphia, PA
- 11:40-12:05pm **Printed Electronics Utilizing Ink Jet Technology**; D.Hayes; MicroFab Technologies, Inc., Plano, Texas
- 12:05-12:30pm **Micropatterned Surface Treatment of Polymers by Plasma Printing - Quantitative CD ATR FT-IR and SEM-EDX analyses**; A.Hinze, N.Lucas, S.Büttgenbach, C.Steinberg, K.Schiffmann, P.Willich, C.Klages; 1 Institut für Oberflächentechnik, Technische Universität Braunschweig, Braunschweig
- 12:30-1:30pm **Lunch**, Winterthur Pavilion

SESSION II

Session 2 - Dielectrics & Passivation

SESSION CHAIRS: Gene Garrett, Raytheon; Robb White, SAIC

- 1:30-1:55pm **Low Temperature Curable Positive-Tone Photosensitive Polyimide**; H.Matsutani, T.Ueno, K. Masuda, T.Ejiri, M.Ohe, and T.Kawamura; Hitachi Chemical Co. Ltd. Ibaraki, Japan
- 1:55-2:20pm **Role of Polyimide in Wafer Warpage**; B.Jones, R.Volant, IBM, East Fishkill, NY
- 2:20-2:45pm **Formation of LowK Organosilicate Films Using Carbon-bridged Monomers**; R.D.Miller, IBM Almaden Research Center, San Jose, CA
- 2:45-3:15pm **BREAK**
- 3:15-3:40pm **Colorless Polyimide Exhibiting Low Temperature Cure and Slow Rate of Oxygen Plasma Etching**; G.Poe, ManTech SRS
- 3:40-4:05pm **Novel Hybrid Inorganic-Polymeric Permeation Barrier for Flexible Displays**; P.Mandlik, J.Gartside, L.Han, I.Cheng, and S.Wagner Department of Electrical Engineering and PRISM, Princeton University, Princeton NJ; J.Silvernail, R.Ma, M.Hack, and J.Brown Universal Display Corporation, Ewing, NJ
- 4:05-4:30pm **Current Issue and Solution for Photosensitive Polyimide Passivation Process**; Dr. Kim, Samsung
- 4:30-4:55pm **Characterization of Effective Chemical Shrinkage and Modulus Evolution During Polymerization**; Y.Wang, B.Han, and A.Bar-Cohen, Department of Mechanical Engineering, University of Maryland, College Park, MD
- 5:30-7:00 pm **Symposium Reception**, Reflecting Pool, Winterthur Mansion

Thursday, May 8

SESSION III

Session 3 - Wafer & Packaging

SESSION CHAIRS: Mike Goodner, Intel; Sue Allen, Georgia Tech; Maria Peterson, JSR Micro

Keynote Address

- 8:00-8:45am **Advanced Packaging Requirements for Next Generation Processors**; Voya Markovich, Endicott Interconnect Technologies, Inc.
- 8:45-9:10am **High Resolution Advanced Flexible Interconnect from a Semiconductor Perspective**; K.Durocher, G.Claydon, J.Iannotti, P.Gipp, and M.Mero, GEGRC
- 9:10-9:35 am **Packaging Technologies for Preferred Mobile Products**; M.Mangrum, Freescale Semiconductor, Austin, TX
- 9:35-10:00am **Silicone for Flexible Packaging of Thin Dies (<20 µm) Using Wafer Level Techniques**; F.Iker, I. De Preter, M.Gonzalez and P.Soussan, IMEC, Leuven, Belgium
- 10:00-10:25am **BREAK**
- Wafer Level Processing of Integrated Passive Components Using Polyimide or Polybenzoxazole / Copper Multilayer Technology**; K.Zoschke, T.Fischer, M.Töpper, K.Samulewicz, O.Wünsch, M.Lutz and H. Reichl, (Fraunhofer-Institut für Zuverlässigkeit und Mikrointegration (IZM) in Berlin, Germany)
- 10:25-10:50am **Low Temperature Curable Polynorbornene as Redistribution Layer**; C.Apanius, B.Knapp, E.Elce, H.Ng, Promerus LLC; J.Kusunoki, E.Takeuchi, S.Ohashi, Sumitomo Bakelite
- 10:50-11:15am **Novel Epoxy Siloxane Polymers for Advanced Microelectronic Applications**; P.Wang, D.Ye, T.Lu; Center of Integrated Electronics, Rensselaer Polytechnic Institute, Troy, NY;
- 11:15-11:40am **R.Ghoshal, and R.Ghoshal; Polysat Co., Inc, Mechanicville, NY**
- 11:40-12:05pm **A Tuneable Polymer System for Microelectronic and Optoelectronic Device Fabrication**; E.Rutter, Honeywell Electronic Materials, Sunnyvale, CA

12:05-1:05pm

Lunch, Winterthur Pavilion

- 1:05-1:30pm **Application of Low-Curing Temperature Polyimide for Wafer Level Packaging**; A.Feldman, Tessera, Israel
- 1:30-1:55pm **A Study of Die Attach Film Adhesive Voiding in Flash Packages**; D.Balacano, Intel
- 1:55-2:20pm **Polyimide Gate Insulators for Organic Thin Film Transistors**; M.Yi, S.Pyo and T.Ahn, I&E Polymer Research Center, Korea Research Institute of Chemical Technology, Daejeon, Korea

SESSION IV

Session 4 - Resists

SESSION CHAIRS: J.Malloy, HD Microsystems; Bill Weber, FUJIFILM Electronic Materials

- 2:20-2:45pm **Development of Negative Photoresists for Redistribution Layer and Bump Applications**; C.Chen, M.Toukhy, S.Lee, B.Plass, M.Paunescu, and G.Pawlowski; AZ Electronic Materials USA Corp., Somerville, NJ
- 2:45-3:10pm **A Unique Dry Film Photoresist System for TSV Formation and Protection**; P.Jorge, C.Tsai, and C.E. Balut; Dupont Electronic Technologies Advanced Packaging Lithography Group
- 3:10-3:35pm **BREAK**
- 3:35-4:00pm **Use of Gradient Masks in the Patterning of Photosensitive Polymers**; D.Racicot, R.Williams, D.Roza, and L.Peterson
- 4:00-4:25pm **Development of Aqueous-Developable Photodefinable Polyimide Materials**; M.Kotani, K.Iwashita, Y.Satoh, H.Nakano, M.Sasaki, and K.Katoh; Yamazaki R&D Center, HD Microsystems, Ltd and Hitachi Chemical Co.
- 4:25-4:50pm **Synthesis and Evaluation of a Copolymer for Photoresist Applications**; D.Sahade, Y.Iinuma; Electronic Materials Research Laboratories, Nissan Chemical Industries, LTD
- 6:00-9:30pm **Symposium Exhibitors, Posters, Cocktails and Dinner**, DuPont Country Club, Rockland, DE

SESSION V
6-7:30 pm

Session 5 - Posters

SESSION CHAIR: Sue Bagen, Endicott Interconnect Technologies

- Poster #1 **Low Cost Chemically Amplified Resist Platforms for Thick Film i-line Applications**; M.Toukhy, M.Paunescu, Z.Bogusz, E.Ng and G.Pawlowski; AZ Electronic Materials USA Corp
- Poster #2 **Low Temperature PVD Silicon Carbide as a Thin Film Protective Coating for Fuel Cell Applications**; L.Bagen, D.Greer, L.Dudik, D.Shelberg, C.Liu; Electronics Design Center and Department of Chemical Engineering, Case Western Reserve University, Cleveland, OH

- Poster #3 **Optimization of the Dry Film Lithography Process for Copper Pillar Metallization Applications**; P. Jorge, A. Huffman, and C. Balut; Dupont Electronic Technologies Advanced Packaging Lithography Group and RTI International
- Poster #4 **Chip-Level Final Via Design Considerations for CPI in PbFree FCPBGA Packaging**; T. Daubenspeck, W. Sauter, D. Questad, R. Volant, J. Cincotta; IBM Microelectronics, Essex Junction, VT & East Fishkill, NY
- Poster #5 **Rapid Cure of Polyimide Coatings for Packaging Applications using Variable Frequency Microwave Irradiation**; M. Zussman, HD MicroSystems; R. Hubbard and K. Hicks - Lambda Technologies

Friday, May 9

SESSION VI

Session 6 - Underfills, Encapsulants

SESSION CHAIRS: Ed Prack, Intel; Jack Craig, HD Microsystems

Keynote Address

- 8:00-8:45am **Polymer Dielectric Requirements for High Off-Chip Bandwidth**; Paul A. Kohl, Director, Interconnect Focus Center, School of Chemical and Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA.
- 8:45-9:10am **Capacitance as an Indicator of Thermal Performance**; M. Gaynes, IBM Research, Yorktown Heights, NY
- 9:10-9:35am **Underfill Packaging Challenges for Future Technology Nodes**; M. Paquet; IBM Bromont, Canada
- 9:35-10:00am **A Study on Moisture Related Epoxy Fillet Cracking in Electronic Packages**; A. Labiano, Intel Technology Philippines, Inc
- 10:00-10:25am **BREAK**
- 10:25-10:50am **Thermal Profiling to Eliminate the Effects of Enthalpic Relaxation in Epoxy Mold Compounds and Die Attach Adhesives**; Sheila Liza Dal, ON Semiconductor Phils. Inc.
- 10:50-11:15am **Improving the Adhesion of Photopatternable Silicone on Poly Dimethyl Siloxane (PDMS) to Encapsulate Elastically Stretchable Microelectrode Arrays**; O. Graudejus, J. Jones, and S. Wagner, Department of Electrical Engineering and Princeton Institute for the Science and Technology of Materials, Princeton University
- 11:15-11:40am **Effects of Underfills on Packaging-Level and Chip-Level Reliability for Cu/low k Interconnects**; X. Zhang, M. Ding, J. Im and P. Ho; Microelectronics Research Center, The University of Texas at Austin - and Freescale, Inc.
- 11:40am **Adjourn**