ADVANCE PROGRAM AND REGISTRATION ON-LINE AT WWW.IMAPS.ORG/MASH

IMAPS Topical Workshop & Tabletop Exhibition on Military, Aerospace, Space and Homeland Security: Packaging Issues and Applications (MASH 2007)

Radisson Plaza Lord Baltimore Hotel
Baltimore, Maryland - USA
May 7 - 10, 2007

Courtesy of JSF

General Chair:
Tom Green, TJ Green Associates LLC
P: 610-625-2158
tgreen1@ptd.net

Technical Program Chair:
Keith Sturcken, BAE Systems
P: 703-367-4948
keith.sturcken@baesystems.com

Exhibits Chair:
Kimbela Randle, Dage Inc.
P: 404-513-4174
krandle@dageinc.com

Sponsored by:

The International Microelectronics And Packaging Society (IMAPS)
Bringing Together the Entire Microelectronics Supply Chain!

Early Registration & Tabletop Booth Discount Ends: April 2, 2007
Hotel Cut-off: April 11, 2007

Message from the General Chair

This year's Military, Aerospace, Space and Homeland Security (MASH 2007): Packaging Issues and Applications Workshop and Tabletop Exhibit in Baltimore is promising to be an exciting event as we bring together the divergent technical issues that are before us in the microelectronics community. This year we're very fortunate to have Paul Schneider, Under Secretary for Management, Department of Homeland Security, as our Keynote Speaker and the dynamic John Douglass, CEO of AIA, as our Dinner Speaker.

There are some difficult technical challenges out there that will require serious dialog. Lead free solder and its' impact on our weapon systems procurement is a hard fact of life, whether we like it or not. Counterfeit parts and part obsolescence are other important topic areas that will be addressed again this year and our featured Keynote Speaker in this area is David Robinson, DLA DMSMS IST and GEM Program Manager, of Defense Supply Center, Columbus. We've also lined up some excellent talks on new materials, thermal management and next generation packaging concepts. Package hermeticity is still a critical reliability concern and there is a lot to report on in the area of "near hermetic" packaging of advanced material sets such as LCP and copper clad Teflon. We expect a good crowd, so sign up early! After you've soaked in this wealth of information, make sure you get out and enjoy the famous "Baltimore Inner Harbor," located just a few blocks from the workshop site.

See you in Baltimore!

Tom Green
MASH 2007 General Chair

Baltimore's Inner Harbor is one of the most photographed and visited features of the city. It has been one of the major seaports in the United States since the 1700's and started blossoming into the cultural center of Baltimore that it has become today since the 1970's.

Distinct in function and form, Baltimoreans and visitors alike enjoy Baltimore's Inner Harbor and the surrounding neighborhoods that offer a variety of fine dining, cultural experiences and exciting nightlife.

From breath-taking panoramic views of the skyline from the Observation Level of the World Trade Center to the up-close and personal experiences of street performances happening spontaneously at the waterfront, Baltimore Inner Harbor offers more to see and do than you might imagine.

Located in the heart of Inner Harbor on Pratt Street is the Harborplace and The Gallery which offers unique shopping, diverse dining and a variety of entertainment right on the picturesque waterfront. Visit http://www.harborplace.com/html for more information.

You'll find a wide array of things to do in Inner Harbor — all within walking distance!

Monday, May 7th

Registration: 11:00 am - 5:00 pm

Professional Development Courses: 1:00 pm - 5:00 pm (1/2 Day)

Reliability of Pb-Free Components, Printed Boards and Assemblies (PDC1)
Instructor: Dr. Gerd M. Fischer, DfR Solutions

Course Description:
Although July 2006 has passed, the potential reliability implications of switching to Pb-free materials and a Pb-free process will potentially be felt for years to come. Numerous American companies in industries exempt from RoHS have already decided to make the jump to Pb-free. These include automotive, appliance, telecommunications, and military. These applications demand long-life in potentially severe operating environments. Understanding how to predict and ensure quality (can I make Pb-free just as good an SnPb?) and long-term reliability (will it last just as long?) is critical to customer satisfaction and, eventually, the success of your company.

This presentation provides a focused but comprehensive discussion on all potential issues that can arise during the transition to Pb-free. All areas of potential risk are examined. For each reliability concern, a brief description is provided, followed by the current state of industry knowledge and an opportunity for risk mitigation based upon the product design, materials, complexity, volumes, and customer expectations of reliability. A final summary provides attendees a roadmap for ensuring the reliability of Pb-free products.

Topics to be covered will include

- Introduction
  - Review of RoHS Legislation
  - What has changed?
- Components
  - Robustness
  - Popcorning (PEMs and capacitors)
- Tin Whiskering
  - Background
  - Matte vs. Bright
  - Mechanical Behavior
  - Mitigation (component-level)
  - Mitigation (OEM level)
  - Prediction
- Solderability Platings
  - ENIG failure mechanisms
  - Immersion Tin failure mechanisms
  - Immersion Silver failure mechanisms
  - OSP failure mechanisms
  - Lead-Free HASL
- Printed Board Robustness
  - Tg and Thermal Stability
  - PTH Barrel Cracking
  - Conductive Anodic Filaments
- Solder
  - Copper Dissolution
  - Mixed Solder
  - Mechanical Loading
  - Intermetallic Formation
  - Tin Pest
- Reliability
  - Temperature Cycling
  - Vibration
- Metallography of Pb-Free Solder

Conclusion

Who Should Attend?
All personnel involved in the process of transitioning to Pb-free, including procurement, design engineers, reliability and quality personnel, failure analysts, and management involved in new product introduction (NPI) and program support.

Dr. Gerd Fischer is a technical senior staff member at DfR Solutions. He has more than 15 years experience in solid state physics, materials and device development, and analytical procedures, with an emphasis on failure analysis and design. He holds a Ph.D. in Physics from the University of Tübingen, Germany, and is a member of the German Physical Society and the American Physical Society. Dr. Fischer has performed Failure Analysis on a wide range of electronic products (e.g., automotive, industrial, consumer), with intensive experience on medical devices. Dr. Fischer has a particular emphasis on material degradation mechanisms with recent investigations in tin whiskers, passive devices (high CV ceramic capacitors, diodes), and state-of-the-art chip scale packaging (CSP). Prior to joining DfR Solutions, Dr. Fischer held positions of senior scientist, member of technical staff, and assistant research professor at companies and institutions including Columbia Telecommunications Corporation, Geballe Laboratory of Advanced Materials at Stanford University, Superconductor Technologies, Inc. and Optical Data Storage Center at the University of Arizona. He held research positions at the Technical University of Denmark and Chalmers University of Technology in Sweden. Dr. Fischer has authored or co-authored 25 articles. He is fluent in English, German and Danish.

DMSMS for Executives Plus (PDC2)

Instructor: Charles Marshall, ARINC Engineering Services, LLC

(Sponsored by the DLA DMSMS IST, David Robinson and ARINC, Walt Tomczykowski)

Course Description:
This is an event-tailored version of the original Diminishing Manufacturing Sources and Material Shortages (DMSMS) for Executives course. The course provides information for the busy professional or Program Manager who requires an understanding of DMSMS impacts to their operations. DMSMS impacts multiple processes including reliability, maintainability, supply chain efficiency, funding, policy, procedure, and staffing. This course offers the student a perspective of management/supervisory actions necessary to enable effective DMSMS mitigation, thereby enhancing mission readiness, efficiency, and cost effectiveness. This course is designed to empower the student through an understanding of the challenges and options to ensure proper establishment of an optimum proactive DMSMS team. Information to help the student understand the difference between the required item-of-supply vs. a base item (a condition often the cause of false DMSMS indications) and a short summary of the DOD DMSMS initiatives have been included to enhance the core course for MASH 2007. This course is presented in a service/function neutral manner.

There is a one-hour web-based version of the original course (CLL202) available through the Defense Acquisition University's Continuous Learning website - https://learn.dau.mil/html/clc/Clc.jsp?fTopic=All&fKeywords=dmsms.

Who Should Attend?
This course is open to anyone who needs a basic understanding of the DMSMS problem and basic approaches to managing or resolving the problem. Managers, technical, acquisition and logistics professionals (and anyone just generally interested) are all invited.

Mr. Marshall is an Operations Manager for the Life Cycle Management Division of ARINC Engineering Services, LLC. He is the lead for Diminishing Manufacturing Sources and Material Shortages (DMSMS) Operations and Defense Logistics Agency (DLA) Programs and DMSMS training.

Mr. Marshall has 24 years of combined government service, beginning his career with the Army in 1976 where he became expert in microcircuits and microelectronics. He served as an Army Aviator prior to becoming a Short Range Air Defense Systems maintenance Warrant Officer. He later worked for the DLA, at the Defense Electronics Supply Center (DESC) and the Defense Supply Center, Columbus (DSCC) as senior technical supervisor for microcircuits (FSC 5962).

Mr. Marshall joined ARINC in August 2000 as a DMSMS operations technician in the B2 Program. He became involved in DMSMS Training and DLA Programs, and developed an operations core team. Mr. Marshall is the integrating author of the course content documents used to create the courses developed for the DMSMS Knowledge Sharing Portal (DKSP), the DLA, and the Defense Acquisition University (DAU).

Mr. Marshall obtained an Associate of Science from the University of the State of New York in 1981, and Bachelor of Science, Operations Management, from the University of the State of New York, 1994.

Failure Mode Analysis of Flip Chip in Advanced Package and Board Assemblies (PDC3)

Instructor: Dr. Daniel F. Baldwin, Engent, Inc.

Course Description:
Over the past few years, several process technology improvements have emerged for advanced electronics package processing such as fast-flow snap-cure underfills, no-flow underfills, emerging wafer scale underfills and associated innovative process technology. These developments have presented new solutions for area array package applications in the area of underfill application, which in the past was a time-consuming post-reflow process. With these processes, much of the cycle time for underfilling has been drastically reduced or eliminated, thereby allowing the flip chip process to become more transparent to high speed surface mount assembly. These processes will make direct chip attachment more readily accessible to the electronics assembly industry. Current market projections and technology roadmaps state that usage of flip chip will increase rapidly over the next decade requiring expanded technology transfer of advanced materials and process solutions addressing the diminishing industry-based research and development programs. While a large number of technical publications are available to help with process requirements, understanding failure modes and reliability standards will be essential for this growth to continue.

This course will present reliability test procedures and common failure modes that occur in advanced area array packages and board assemblies. The course will focus on accelerated reliability tests, failure mechanisms and analysis tools such as thermal shock, thermal cycle, autoclave, X-ray analysis, acoustic microscopy and scanning electron microscopy. It will also present different process defects using several analysis tools and discuss reasons why the defects cause failure.

Topics:
- Reliability Test Standards
- Destructive and Non-Destructive Failure Analysis and Equipment
- Process Defects and Effects on Failure and Reliability
- Reliability Modeling
- Failure Modes and Reliability Implications
    - Delamination and Void Growth
    - Solder Migration
    - Solder Extrusion
    - Die Cracking - Center
    - Die Cracking - Edge
    - Underfill Cracking - Fillets
    - Underfill Cracking - Bulk
    - Solder Fatigue
    - UBM Pad Lift
    - Solder Creep Fracture
    - Gold Embrittlement
    - Interconnect, Substrate, and Chip Design Factors
- In Situ Stress Analysis of Flip Chip Assemblies

Who Should Attend?
Individuals associated with low cost surface mount assembly and low cost electronics packaging are encouraged to attend, specifically, the following:
- Managers. Knowledge gained through this course will allow managers to make informed decisions about the technical feasibility, implementation factors, performance benefits, reliability, and costs of implementing low cost flip chip processing technology. In addition, the hands-on experience gained will provide practical experience with state-of-the-art flip chip process technology and emerging low cost process technologies.
- Engineers. Manufacturing, quality, design, and packaging engineers in integrated circuit, equipment, materials, and system design who are challenged to solve tomorrow's process solutions and next generation packaging problems. Of particular benefit to technical professionals is the practical hands-on experience with low cost flip chip process technologies and emerging technologies that will be gained through the course.

Dr. Daniel F. Baldwin is President of Engent, Inc. providing enabling process technologies and manufacturing services in the areas of electronics, optoelectronics, and MEMS. He was formerly Vice President of the Advanced Assembly Technology Division at Siemens Dematic Electronic Assembly Systems. He also holds an Associate Professor of Mechanical Engineering position at Georgia Institute of Technology, heading the Low Cost Flip Chip Processing program for the Packaging Research Center, the Advanced Interconnect Technologies research program for the Manufacturing Research Center, and the Low Cost Assembly Processing Program for the CBAR. Dr. Baldwin has served as General Chair and Program Chair of the International Advanced Technology Workshop on Flip Chip Technology for four years. He has also served as Technical Program Chair for the 4th International Symposium on Advanced Packaging Materials: Processing, Properties and Interfaces. In addition, he was the recipient of the 1998 Outstanding Research Faculty of the Year Award and 1995-1996 Outstanding Faculty of the Year Award from the NSF - Packaging Research Center for his exemplary contributions in research, education, technology transfer, and infrastructure development. Prior to joining the faculty, he was a Member of the Technical Staff at Bell Laboratories, Princeton, NJ, working on electronic product miniaturization. Dr. Baldwin received his S.M. and Ph.D. degrees in Mechanical Engineering from MIT in 1990 and 1994, respectively. He has eleven years of experience in the electronics manufacturing and polymer processing industries, four U.S. Patents, over 100 scholarly publications, and expertise in electronics packaging, MEMS packaging, advanced materials processing and manufacturing systems design. Dr. Baldwin is on the Board of Advisors for the Society of Manufacturing Engineers/Electronics Manufacturing Division (SME/EM) and on the Board of Directors for the Surface Mount Technology Association (SMTA).

TABLETOP EXHIBITION

SPACE STILL AVAILABLE! RESERVE YOUR BOOTH TODAY!

www.imaps.org/mash

TUESDAY, MAY 8, 2007
10:00 AM - 6:30 PM

WEDNESDAY, MAY 9, 2007
10:00 AM - 4:00 PM

Tuesday, May 8th

Registration: 7:00 am - 7:45 pm
Continental Breakfast: 7:00 am - 8:00 am

Opening Remarks: 8:00 am - 8:15 am

General Chair: Tom Green, TJ Green Associates LLC
Technical Chair: Keith Sturcken, BAE Systems

Keynote Presentation: 8:15 am - 8:45 am
Title: TBA

Speaker: Paul Schneider,
Under Secretary for Management, Department of Homeland Security

Paul A. Schneider was sworn in January 3, 2007, as the Department of Homeland Security's (DHS) Under Secretary for Management. He is responsible for all the department's budget, appropriations, expenditure of funds, accounting and finance; procurement; human resources and personnel; information technology systems; facilities, property, equipment, and other material resources; and identification and tracking of performance measurements.

Prior to coming to DHS, Schneider served as a defense and aerospace consultant where he led a congressionally-directed study for NASA on the costs, risks and benefits of human space flight and a study of open architectures for the U.S. Navy. He led an independent review of the presidential helicopter replacement program, played a role in the administration's effort to develop the plan for the Next Generation Air Transportation System and led reviews of Defense network centric warfare and interoperability programs.

Schneider holds a degree in nuclear engineering and is a member of the American Society of Naval Engineers (ASNE), Armed Forces Communications and Electronics Association (AFCEA), Association of Scientists and Engineers (ASE), Navy League, Association of Old Crows and the Naval Institute.

Session 1: Performance Packaging: Thermal, Noise & Mechanical Considerations

Session Chairs: Richard LaBennett, Tenebal, Inc.; Bruce LaMattina, US Army Research Office

8:45 am - 12:15 pm

The Challenge to Integrate High Performance Organic Packaging into High End ASIC Strategic Space Based Applications
Ronald Nowak, Endicott Interconnect Technology

Leveraging Wafer-Level Packaging and Advanced Stacked Packaging for Military Applications
Naghmeh Sarkeshik, Tessera, Inc.

Power Plane Noise Suppression for Next Generation High Speed Busses
Daniel I. Amey, Sounak Banerji, DuPont Electronic Technologies

Break in the Exhibit Hall: 10:00 am - 10:30 am

Exhibit Hours: 10:00 am - 6:30 pm

Experimental Results of Total Ionizing Dose Effects on 0.5 Micron SOS MOSFET Test Structures
Michael Fujita, M. Arshad, J. Lauinger, Defense Microelectronics Activity; R. Greenwell, EagleST

Thermally Enhanced Packages for High Heat Density Electronics
Robert Hay, sp3 Diamond Technologies; Brian Edward, Pete Ruzicka, Sensis Corporation

Heat Pipe Enhanced Conduction for Conduction Cooled Cold Plates
Scott D. Garner, Pete Dussinger, Advanced Cooling Technologies

High Reliability Flip Chip Assembly using Fluxless Reflow Techniques
Daniel F. Baldwin, Paul Houston, Engent, Inc.

Lunch in the Exhibit Hall: 12:15 pm - 1:15 pm

Session 2: Lead Free

Session Chairs: Carolynn Drudik, Defense Microelectronics Activity (DMEA); Norman Helmold, NASA

1:15 pm - 4:35 pm

Nanopackaging for Miniaturized Multifunctional Wearable Electronics
P. Markondeya Raj, Rao Tummala, Mahadevan Iyer, Janagama Goud, Kent Coulter, Venky Sundaram, Georgia Institute of Technology

The DoD Response to Lead-Free Electronics
Vance Anderson, Defense Microelectronics Activity (DMEA)

Lead-Free Electronics - A Reliability Update
Andrew D. Kostic, Northrop Grumman Electronic Systems

Break in Exhibit Hall: 2:30 pm - 3:15 pm

Reliability Testing of Sn63 Solder Flip Chip Bumps on Metalized LTCC and Development of a Fluxless Flip Chip Bonding Process for Optical Military Electronics
Michael Girardi, David Kautz, Carl Gustafson, Greg Barner, Honeywell Federal Manufacturing and Technologies, LCC

Reliability of Solder Joint Quality on J-Lead Oscillators Using HALT with Lead and Lead-Free Compositions
Todd H. Treichel, Precision Devices, Inc.; Steve Laya, Elite Electronic Engineering, Inc.

Impact of RoHS Legislations on National Security
Michael Osterman, Michael Pecht, Diganta Das, University of Maryland - CALCE

Panel Discussion on Lead-Free: 4:35 pm - 5:20 pm

An expert panel will address the global transition to lead-free solders and finishes in electronic assemblies. This RoHS-and-WEEE induced transition has had considerable impact on the US electronics industry. As most of the consumer electronics manufacturers' transition to lead-free assemblies, much of the aerospace, defense and high-reliability industries are struggling to remain with the proven tin-lead products. The panel will discuss key issues including component availability, manufacturing, solder joint reliability, tin whiskers, qualification, repair, and process development.

Panelists

Craig Hillman, CEO, DfR Solutions

Vance Anderson, Senior Engineer, Defense Microelectronics Activity (OSD/DMEA) & Co-Chairman Executive Lead-Free Integrated Process Team (ELFIPT)

Andrew Kostic, Fellow Engineer, Northrop Grumman Electronic Systems

Reception in Exhibit Hall: 5:25 pm - 6:30 pm

Dinner: 6:30 pm - 7:45 pm

Dinner Speaker: 7:15 pm - 7:45 pm

Dinner Speaker: 7:15 pm - 7:45 pm
Title: The State of the Aerospace Industry

Speaker: John Douglass,
President and Chief Executive Officer, Aerospace Industries Association

John W. Douglass is president and chief executive officer of the Aerospace Industries Association (AIA), which represents the nation's leading manufacturers and suppliers of civil, military, and business aircraft; helicopters; UAVs; space systems; aircraft engines, material, and related components; equipment services; and information technology**.** Mr. Douglass became the seventh full-time chief executive of the association in 1998. Before that, he served for nearly three years as assistant secretary of the Navy for research, development and acquisition of defense systems for the U.S. Navy and U.S. Marine Corps.

A nationally-recognized expert in systems acquisition, Mr. Douglass has extensive acquisition experience in Congress, the Defense Department, and the Executive branch as a policy authority, contracting officer, engineering officer, test and evaluation officer, program control officer, and research director.

A native of Miami, he earned a Bachelor of Science degree in industrial engineering from the University of Florida, a Master of Science degree in industrial engineering from Texas Tech University and a Master of Science degree in management science from Fairleigh Dickinson University. Mr. Douglass has done postgraduate work at Cornell University Center for International Studies where he was an Air Force Research Fellow with the Peace Studies Program.

Wednesday, May 9th

Registration: 7:00 am - 5:20 pm

Continental Breakfast: 7:00 am - 8:00 am

Session 3: Hermetic Packaging and Testing

Session Chairs: Rob Hands, North Carolina State University; John Mazurowski, Pennsylvania State University

8:00 am - 11:55 am

Application of the MIL-STD-883F Based Helium Fine Leak Test Guidelines in Practice
Arindam Goswami, Bongtae Han, University of Maryland - College Park

Planar Getter Systems for Maintaining the Reliability of Hermetically Sealed Devices
Richard Kullberg, SAES Getters/USA, Inc.; Marco Amiotti, SAES Getters S.p.A.Viale Italia

Board Level Hermeticity Testing of Assembled Modules using Optical Leak Testing: A New Model for Enhanced System Reliability
John W. Newman, NorCom Systems Inc.

Quality Analysis of Hermetically Sealed Quartz Crystal Package Mounted in Clock Oscillator Designed for Space Flight
Todd H. Treichel, Precision Devices, Inc.

Cumulative Helium Leak Detection (CHLD), First New Test Method for Testing Hermetic Packages in over 30 Years, Case Studies of Previously Manufactured Parts that Failed after Years on Shelf
John C. Pernicka, Pernicka Corporation

Exhibit Hours: 10:00 am - 4:00 pm

Break in Exhibit Hall: 10:05 am - 10:35 am

Obtaining True Leak Rates of Non-Hermetic Micro to Nanoliter Packages Using a Helium Mass Spectrometer
Arindam Goswami, Bongtae Han, University of Maryland - College Park

Wafer-Level Hermetic Packaging for MEMS Devices
Wallace Tang, Hudi Brenman, Kaosio Saechao, David Woolsey, Michael Cohn, Micro Assembly Technologies

Utilizing Vacuum Soldering, in a Flux Free Environment, to Reduce Voids in Microwave Packaging Assemblies
Paul W. Barnes, SST International

Lunch in Exhibit Hall: Noon - 1:00 pm

Session 4A: Advanced Designs and Processes

Session Chairs: John Mazurowski, Pennsylvania State University; Keith Sturcken, BAE Systems

1:05 pm - 3:10 pm

Non-Hermetic Packaging of RF Multi-Chip Modules
Matthew Gruber, Lockheed Martin

Liquid Crystal Polymer (LCP) Printed Circuit Board (PCB) Based Packaging and Interconnects
Linas Jauniskis, Brian Farrell, Andrew Harvey, Foster-Miller, Inc.

Understanding Moisture Ingress into Cavity Style Teflon Laminate Packages
Bayard "Bud" J. Osthaus, Merrimac Industries; Tom Green, TJ Green Associates LLC

Technology Assessment of Sensor Systems for Prognostics and Health Monitoring
Brian Tuchband, Shunfeng Cheng, Michael Pecht, University of Maryland – CALCE

Silicone Encapsulation of Extreme Environment Sensors
Jeff Caruso, Bill Riegler, Rob Thomiaer, NuSil Technology LLC

Break in Exhibit Hall: 3:10 pm - 4:00 pm

Session 4B: Advanced Photonic Packaging

Session Chairs: John Mazurowski, Pennsylvania State University; Keith Sturcken, BAE Systems

4:05 pm - 5:20 pm

Leveraging the Militarization of COTS Adhesives for Significant Cost Savings of Terrestrial Fiber Optic Cables
Gregory T. Daly, Lockheed Martin MS2

Photonic Device Packaging Applications for Future Generation Military Avionics Fiber Optics
Mark W. Beranek, Naval Air Systems Command

Issues in Space Qualification of Fiber Optics Components
Robert W. Irvin, Ralph S. Jameson, Clear Align LLC

SPECIAL THANKS TO THE PRESENTERS AND ORGANIZERS!

YOUR COMMITTMENT IS GREATLY APPRECIATED!

Thursday, May 10th

Registration: 7:00 am - 12:15 pm
Continental Breakfast: 7:00 am - 8:00 am

Keynote Presentation: 8:00 am – 8:30 am
Title: Avoiding the Procurement of Counterfeit Parts during DMSMS Operations

Speaker: David G. Robinson,
DLA DMSMS IST and GEM Program Manager, Defense Supply Center, Columbus

Mr. David Robinson is the DLA DMSMS Integrated Supplier Team (IST) manager and lead for all DLA DMSMS issues. He also serves as Generalized Emulation of Microcircuits (GEM) Program Manager, DoD DMSMS Knowledge Sharing Portal (DKSP) Program Manager, DMSMS Work Shop Chair and Chairman of the DoD DMSMS Working Group Outreach Committee. He is responsible for over 1.7 million spare parts, all with the potential to go DMS, used by over 28,000 customers supporting 124 nations.

Mr. Robinson began his federal career in 1981 at the Defense Electronics Supply Center (DESC) in Kettering, Ohio, as an Electronic Equipment Specialist. Initially working Federal Supply Class (FSC) 5998, Circuit Cards, he gained experience and rose through the ranks to become the Microcircuit Branch Chief managing FSC 5962, microcircuits for the Active Devices Commodity group at Defense Supply Center, Columbus.

In this capacity he became intimately familiar with the problem known as Diminishing Manufacturing Sources and Material Shortages (DMSMS). Working with his government and private sector contacts, he became very involved in DMSMS at the HQ-DLA and DoD level. Mr. Robinson is a recognized and sought-out problem solver.

Session 5A: Counterfeit, Suspect Parts and Mitigation Strategies

Session Chairs: Walt Tomczykowski, ARINC; Todd Treichel, Precision Devices, Inc.

8:30 am - 10:35 am

Counterfeit Electronic Components - An Overview
Robert K. Lowry, Oneida Research Services & Consultant in Electronic Materials

A Case Against Buying from Part Brokers
Diganta Das, Kaushik Chatterjee, Michael Pecht, University of Maryland - CALCE; Jack Stradley, Rochester

The Impact of Uncertified Parts in Military Systems
Jack Stradley, Rochester Electronics

Counterfeit Detection through Inspection
Kaushik Chatterjee, Diganta Das, Michael Pecht, University of Maryland - CALCE; Michael Sosnowski, EMC Corporation

Demonstration of an Authentication Technique on an International Supply Chain
Diganta Das, Michael G. Pecht, University of Maryland - CALCE; Chris Ricci, Peter Suorsa, Prime Technologies; Dave Pinsky, Raytheon

Break: 10:35 am - 11:00 am

Session 5B: Advanced Reliability

Session Chairs: Walt Tomczykowski, ARINC; Todd Treichel, Precision Devices, Inc.

11:00 am - 12:15 pm

Summary Report for Implementing Solder Mask Pillars to Standoff Leadless Components
Louis Greco, Martha Veselka, Howard Adams, L-3 Communications - Communication Systems East

CAF Formation in High Density PWBs
Keith Rogers, Department of Defense

Multi Chip Modules (MCM) Miniaturization meets Reliability and Optimum Performance
Bob Costa, C&D Technologies

Tabletop Exhibition

"An opportunity to talk to industry leaders"

May 8 - 9, 2007

Tuesday - May 8th **10:00 am - 6:30 pm (Exhibit Hours)**

Refreshment Breaks, Lunch and Reception will be in the Exhibit Area.

Wednesday - May 9th **10:00 am - 4:00 pm (Exhibit Hours)**

Refreshment Breaks and Lunch will be in the Exhibit Area.

Tabletop Registration Fees

	On or before 4/2/07	**After 4/2/07**
IMAPS Corporate/Organizational Member	$500 per booth	$550 per booth
IMAPS Non-Corporate/Organizational Member	$700 per booth	$750 per booth

Included With Your Registration

- one (1) six foot draped table
- two (2) chairs
- carpeting
- one (1) Technical Presentations CD-ROM - post workshop
- one (1) List of Attendees - post workshop
- Exhibit Hall admission for two (2) booth personnel

Additional booth personnel are welcome at an extra cost of $50 per person.
Registrations for the full workshop are available at an additional cost.

Shipments are made to the hotel directly. You save money because no service contractor is involved!
Radisson Lord Baltimore Hotel
20 West Baltimore Street
Baltimore, MD 21201
Phone: 800-333-3333 or 410-539-8400

Cancellation Policy

Booth cancellations made on or before 4/2/07 will receive a refund minus $100 handling fee.
Booths cancelled after 4/2/07 will not be refunded.

For more information, visit www.imaps.org/mash or contact:
Ann Bell, *abell@imaps.org; 202-548-8717* or Kimbela Randle, *krandle@dageinc.com; 404-513-4174*

Marketing Feature Available for Exhibitors

IMAPS will extend to all exhibitors an opportunity to provide an unlimited amount of pages of company products, services and contact information to be included on the post-event Technical Presentations CD-ROM. These CD-ROMs are provided to all technical workshop attendees and are for sale through IMAPS to all industry professionals.

This unique feature will allow exhibiting companies an unlimited amount of promotional material for their products and services that will go well beyond their exposure at the workshop.

There is no charge for this optional feature. ***However, the deadline (4/2/07) must be met in order to be included.***

Submissions must be sent electronically in one (1) file, either PDF or Word format, that is easy to open, not password-protected and in a logical format. Any materials not sent in the required format or that arrive after the deadline, may not appear on the CD-ROM. Send files to abell@imaps.org on or before April 2, 2007.

Registration Form

Register On-Line at www.imaps.org/mash

MASH Topical Workshop: May 7 - 10, 2007

❑ Dr. ❑ Mr. ❑ Ms. Member ID# ______________

First Name______________________________ M.I.____________ Last Name______________________________

Company/Affiliation____ Job Position__________________________

Address____

City__________________________ State_____ Zip___________ Country_______________________________

Phone______________________ Fax_______________________ Email____________________________________

Registration Fees: Early Registration Ends 4/2/07

Workshop Fees

	(On or before 4/2)	(After 4/2)
❑ Member (IMAPS)	$600	$700
❑ Non-member*	$700	$800
*Includes one-year IMAPS individual membership		
❑ Speaker ❑ Chair	$375	$475
❑ Student ❑ Chapter Officer	$375	$475

Workshop Fees include Abstract Book; all meals listed and a CD-ROM of Presentations. CD-ROM of Presentations will be mailed 10 business days after the event.

❑ Exhibits Only	Free	$10

Professional Development Courses - 1/2 Day

Monday, May 7th (1:00 pm - 5:00 pm)

❑ Reliability of Pb-Free...(PDC1)	$450	$550
❑ DMSMS for Executives Plus (PDC2)	$450	$550
❑ Failure Mode Analysis...(PDC3)	$450	$550

Tabletop Exhibit: May 8 - 9, 2007

❑ IMAPS Corporate Member	$500	$550
❑ Non-IMAPS Corporate Members	$700	$750
❑ Yes, we will participate in the CD-ROM	FREE	

Tabletop registration fee includes 1-six foot draped table, 2 chairs, carpeting and an Exhibit Hall admission for 2 booth personnel & CD-ROM participation. A CD-ROM of Technical Presentations and 1-list of attendees will be sent to you after the event.

Additional Purchases

❑ Guest/Family Member *(meals only)*	$180	$180
❑ CD of Presentations *(Member Rate)*	$150	$150
❑ CD of Presentations *(Non-Member Rate)*	$275	$275
❑ Add to Ship in the US	$7	$7
❑ Add to Ship Overseas	$25	$25

Hotel Reservation *(Hotel Cut-off is April 11, 2007)*

Reservation **must** be made directly with:

Radisson Plaza Lord Baltimore Hotel
20 West Baltimore Street
Baltimore, MD 21201
P: 800-333-3333 or 410-539-8400

To reserve room on-line, visit www.radisson.com/lordbaltimore and enter IMAPS as the Promotional Code.

Single/Double: $179

Please reference IMAPS when making reservation by phone.

The Radisson Hotel requires a deposit for the first night's room and tax to hold your room. Deposit refunded if reservation is cancelled seven (7) working days prior to arrival.

Payment

MIL07PROG

Workshop Fee: $______________________

Professional Course: $______________________

Tabletop Exhibit: $______________________

Additional Purchases: $______________________

Total Payment Due: $______________________

For Wire Transfer information call 202-548-4001

❑ Enclosed is a check payable in US funds to IMAPS

❑ Charge my fees to:

❑ Visa ❑ MasterCard ❑ Discover ❑ Amex ❑ Diners Club

Card #____________________________ Exp.________

Signature______________________________________

Card billing address, if different from above: (required)

____

____

Mail this form with payment to: IMAPS * 611 2nd Street, NE * Washington, DC 20002-4909. For credit card transactions, register on-line: www.imaps.org; or register by phone with your credit card by calling 202-548-4001; Fax: 202-548-6115. Additional information? E-mail: IMAPS@imaps.org, or visit our web site: http://www.imaps.org. Workshop Cancellations will be refunded (less a $50 processing fee) only if written notice is postmarked on or before **Friday, April 20, 2007**. No refunds will be issued after that date.

IMAPS Registration
611 2nd Street, NE
Washington, DC 20002-4909

"Return Service Requested"