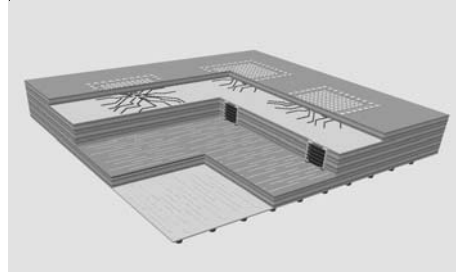


IMAPS/ACerS 5th International Conference and Exhibition on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT)

THE CURTIS HOTEL
DENVER, COLORADO - USA
APRIL 21 - 23, 2009



FINAL PROGRAM

GENERAL CO-CHAIRS:

Michael Lanagan, The Pennsylvania State University
mlanagan@psu.edu

Jun Akedo, National Institute of Advanced Industrial Science and Technology (AIST)
akedo-j@aist.go.jp

TECHNICAL PROGRAM CO-CHAIRS:

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tsurumi@ceram.titech.ac.jp

Jens Mueller, University of Ilmenau
jens.mueller@tu-ilmenau.de

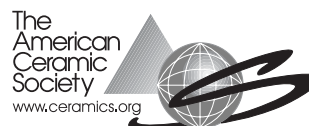
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INTERNATIONAL MICROELECTRONICS AND PACKAGING SOCIETY (**IMAPS**)

Bringing Together the Entire Microelectronics Supply Chain

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THE AMERICAN CERAMIC SOCIETY (**ACERS**)



CICMT Program Outline	
Tuesday, April 21	
7:30 am – 7:30 pm	Registration
10:00 am - 7:30 pm	Exhibit Hours
8:30 am – 9:00 am	Keynote Presentation Title: Development of an H/LTCC-Based HPLC (High Pressure Liquid Chromatography) Microfluidic Consumable Speaker: Geoff Gerhardt, Waters Corporation
9:00 am – 9:30 am	Keynote Presentation Title: Advanced Electro-Ceramics: Present and Future Prospect Speaker: Y. Sakabe, Murata Manufacturing Co., Ltd.
9:30 am – 10:00 am	Keynote Presentation Title: LTCC - Technology: A Challenging Platform for Microsystem Fabrication Speaker: Walter Smetana, Vienna University of Technology
10:00 am – 10:30 am	Break in Exhibit Hall
	Ceramic Micro Systems Track
	Ceramic Interconnect Track
Topical Sessions: 10:30 am - 12:10 pm	Session TA1: Deposition Techniques, ALD, Molecular Deposition, Aerosol Deposition Chairs: Y. C. Lee, University of Colorado at Boulder; Alexander Michaelis, Fraunhofer Institute for Ceramic Technologies and Systems
	Session TA2: Direct Write Technology Chairs: Christopher A. Ablett, Sandia National Laboratories; Seung-Hyun Kim, INOSTEK Inc.
12:10 pm - 1:40 pm	Lunch in Exhibit Hall (<i>Lunch served 12:10 pm - 1:10 pm</i>)
Topical Session: 1:40 pm - 3:20 pm	Session TP1: Ceramic Actuators in Microsystems (Piezoelectrics Materials and Devices) Chairs: Richard Eitel, University of Kentucky; Fred Barlow, University of Idaho
3:20 pm - 3:50 pm	Break in Exhibit Hall
Topical Session: 3:50 pm - 5:50 pm	Session TP2: Microsystems Materials and Properties Chairs: Donald Plumlee, Boise State University; Charles Lewinsohn, Ceramtec, Inc.
	Session TP3: Electromagnetic Properties Characterization Chairs: Yoshihiko Imanaka, Fujitsu Limited; Minoru Osada, National Institute for Materials Science
6:00 pm - 7:30 pm	Reception in Exhibit Hall
Wednesday, April 22	
7:30 am - 5:00 pm	Registration
10:00 am - 4:00 pm	Exhibit Hours
8:30 am - 10:00 am	Session WA1: International Session on Microsystems Chairs: Leszek Golonka, Wroclaw University of Technology; Karl-Heinz Drue, Technical University of Ilmenau
10:00 am - 10:30 am	Break in Exhibit Hall
Topical Sessions: 10:30 am - 11:50 am	Session WA2: Design and Fabrication of Ceramic Microsystems and Devices Chairs: Torsten Rabe, Federal Institute for Materials Research and Testing (BAM); Thomas Maeder, Ecole Polytechnique Fédérale de Lausanne
	Session WA3: Processing and Design of Integrated Passives in LTCC Chair: Jerry Aguirre, Kyocera America Inc.
12:00 pm - 1:20 pm	Lunch in Exhibit Hall
1:30 pm - 3:30 pm	Session WP1: Interactive Forum (Poster Session) One-on-One Interactive Forum. This is your chance for detailed interaction with authors whose work is too good to miss. Chair: Amy Moll, Boise State University
3:30 pm - 4:00 pm	Break in Exhibit Hall
4:00 pm - 5:30 pm	Session WP2: LTCC Standards Chairs: Howard Imhof, Metalor Technologies USA; Michael Ehlert, Barry Industries Inc.
Thursday, April 23	
7:30 am - Noon	Registration
Topical Sessions: 8:30 am - 10:30 am	Session THA1: Advanced Packaging Technology Chairs: Martin Oppermann, EADS Deutschland GmbH; Ken Peterson, Sandia National Laboratories
10:30 am - 12:00 pm	Session THA2: LTCC University Consortium Meeting Chairs: W. Kinzy Jones, Florida International University; Amy Moll, Boise State University
12:00 pm	Conference Closing Remarks
Thursday, April 23: See inside program for more information on the following...	
IEEE LTCC Standards Working Group (P1787): 8:30 am - 12:00 pm	
NIST Dielectric Measurement Tutorial: 1:30 pm - 4:00 pm	

M

essage from the General Co-Chairs

Welcome to the 5th International Conference on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT)!

CICMT, THE premier global forum on ceramic interconnect and ceramic microsystems, continues to benefit from the complementary interests, strengths, leadership, and joint sponsorship of the International Microelectronics And Packaging Society (IMAPS) and The American Ceramic Society (ACerS). This collaboration, in two of the fastest growing areas of ceramic technology, attracts the participation of leading scientists and engineers from esteemed universities, prestigious national laboratories, and the commercial leaders in the industry.

Back in Denver after a successful meeting in Munich, Germany last year, this event brings together experts from Asia, Europe, and North and South America to present and discuss the latest advances in ceramic interconnect and ceramic microsystems technologies. Coming from more than 40 different organizations including universities as well as industry and government laboratories, the conference will provide a wide spectrum of interests reflected in the papers throughout 12 sessions. This year's keynote and international session speakers will focus on multilayer ceramic components and future applications.

In addition to the Microsystems and Ceramic Integration paths, we are delighted to add a Low Temperature Co-fired Ceramic Processing (LTCC) standards session to promote industrial interactions.

We thank the Technical Program Co-chairs Amy Moll (Boise State University), Jens Müller (Technical University Ilmenau) and Takaaki Tsurumi (Tokyo Institute of Technology); all the Session Chairs for the long hours and hard work they contributed in creating this outstanding program. Our special thanks go out to the staffs and Executive Committees of IMAPS and ACerS, who provided the steady encouragement, excellent assistance, and expert coordination to help make CICMT 2009 a reality. Finally, we thank each and every one of you for contributing to the success of CICMT 2009 through your participation and attendance. We hope that you gain as much from this conference as we have in pulling it together.

Plans are already underway for CICMT 2010 in Chiba, Japan. We welcome your comments, suggestions, and assistance to help us achieve the CICMT goal of accelerating the research, development, and product impact of our exciting ceramic technology thrusts. Please visit our website at www.cicmt.org for information on future events.

Michael Lanagan and Jun Akedo
General Co-Chairs

Tuesday, April 21

REGISTRATION: 7:30 AM - 7:30 PM

CONTINENTAL BREAKFAST: 7:30 AM - 8:15 AM

EXHIBIT HOURS: 10:00 AM - 7:30 PM

REFRESHMENT BREAKS, LUNCH & RECEPTION IN EXHIBIT HALL

OPENING REMARKS: 8:15 AM - 8:30 AM

CONFERENCE CHAIRS

KEYNOTE PRESENTATION: 8:30 AM - 9:00 AM

TITLE: DEVELOPMENT OF AN H/LTCC-BASED HPLC (HIGH PRESSURE LIQUID CHROMATOGRAPHY)
MICROFLUIDIC CONSUMABLE

SPEAKER: GEOFF GERHARDT, WATERS CORPORATION

KEYNOTE PRESENTATION: 9:00 AM - 9:30 AM

TITLE: ADVANCED ELECTRO-CERAMICS: PRESENT AND FUTURE PROSPECT

SPEAKER: Y. SAKABE, MURATA MANUFACTURING CO., LTD.

KEYNOTE PRESENTATION: 9:30 AM - 10:00 AM

TITLE: LTCC - TECHNOLOGY: A CHALLENGING PLATFORM FOR MICROSYSTEM FABRICATION

SPEAKER: WALTER SMETANA, VIENNA UNIVERSITY OF TECHNOLOGY

BREAK IN EXHIBIT HALL: 10:00 AM - 10:30 AM

CICMT Tabletop Exhibition

Tuesday, April 21st

10:00 am - 7:30 pm

(Reception in the Exhibit Hall: 6:00 PM - 7:30 PM)

Wednesday, April 22nd

10:00 am - 4:00 pm

SESSION TA1: DEPOSITION TECHNIQUES, ALD, MOLECULAR DEPOSITION, AEROSOL DEPOSITION

Chairs:

Y. C. Lee, University of Colorado at Boulder;
Alexander Michaelis, Fraunhofer Institute for Ceramic
Technologies and Systems
10:30 AM - 12:10 PM

ATOMIC LAYER DEPOSITION (ALD) AND MOLECULAR LAYER DEPOSITION (MLD) FOR BARRIER COATINGS ON POLYMERS
D. S. Seghete, S. H. Jen, J. A. Bertrand, S. M. George, University of Colorado

DEFECT INSPECTION OF ATOMIC LAYER DEPOSITION / MOLECULAR LAYER DEPOSITION-BASED BARRIER COATINGS
Yadong Zhang, David C. Miller, Jacob A. Bertrand, Shih-Hui Jen, Ronggui Yang, Martin L. Dunn, Steven M. George, Y. C. Lee, DARPA / University of Colorado at Boulder; Yu-Zhong Zhang, Invitrogen/ Molecular Probes, Inc.

MECHANICAL ROBUSTNESS OF ALD/MLD-BASED BARRIER COATINGS
David C. Miller, Ross R. Foster, Yadong Zhang, Shih-Hui Jen, Jacob A. Bertrand, Zhixing Lu, Dragos Seghete, Jennifer L. O'Patchen, Ronggui Yang, Yung-Cheng Lee, Steven M. George, Martin L. Dunn, DARPA / University of Colorado

FLEXIBLE THERMAL GROUND PLANE ENABLED BY ALD/MLD-BASED BARRIER COATINGS
Ching-Yi Lin, Ronggui Yang, Y. C. Lee, Aziz Abdulagatov, Steven M. George, University of Colorado at Boulder

$(\text{Ba}_{0.6}\text{Sr}_{0.4})\text{TiO}_3$ THICK FILMS DEPOSITED BY AEROSOL DEPOSITION METHOD FOR MULTI-LAYERED CAPACITOR APPLICATIONS
Daniel Popovici, Hiroki Tsuda, Jun Akedo, National Institute of Advanced Industrial Science and Technology (AIST)

SESSION TA2: DIRECT WRITE TECHNOLOGY

Chairs:

Christopher A. Applett, Sandia National Laboratories;
Seung-Hyun Kim, INOSTEK Inc.
10:30 AM - 12:10 PM

OMNIDIRECTIONAL PRINTING OF FLEXIBLE, SPANNING, AND STRETCHABLE SILVER MICROELECTRODES
Jennifer A. Lewis, Bok Y. Ahn, Eric B. Duoss, Michael J. Motala, Xiaoying Guo, Sang-II Park, Yujie Xiong, Jongseung Yoon, Ralph G. Nuzzo, John A. Rogers, University of Illinois at Urbana-Champaign

COLLOIDAL GELS INDUCED AT ROOM TEMPERATURE FOR DIRECT-WRITING OF ARTIFICIALLY ENGINEERED MATERIALS
Hiroya Abe, Soshu Kirihara, Osaka University; Jun Akedo, National Institute of Advanced Industrial Science and Technology (AIST)

DIRECT WRITE OF METALS AND FUNCTIONAL MATERIALS FOR THREE-DIMENSIONAL INTERCONNECTS AND ANTENNAS
Paul G. Clem, James F. Carroll III, Adam W. Cook, Eric D. Branson, Chris A. Applett, Sandia National Laboratories

HIGH ASPECT PATTERNING OF Ag FINE LINE BY A LASER ASSISTED INK-JET PRINTING
Jun Akedo, Akito Endo, National Institute of Advanced Industrial Science and Technology

INKJET PRINTING OF POST-FIRED THICK-FILM CAPACITORS
Marcel Wassmer, Waldemar Diel, Klaus Krueger, Helmuth Schmidt University

LUNCH IN THE EXHIBIT HALL: 12:10 PM - 1:40 PM
(LUNCH SERVED 12:10 PM - 1:10 PM)

SESSION TP1: CERAMIC ACTUATORS IN MICROSYSTEMS (PIEZOELECTRICS MATERIALS AND DEVICES)

Chairs:

Richard Eitel, University of Kentucky;
Fred Barlow, University of Idaho
1:40 PM - 3:20 PM

PIEZOELECTRIC SINGLE CRYSTAL PMN-PT: FIELD-INDUCED ACTUATION AT TEMPERATURE
J. F. Carroll III, Sandia National Laboratories; D. A. Payne, University of Illinois at Urbana-Champaign;
J. Tian, P. Han, H. C. Materials

PZT THICK FILMS FOR MEMS APPLICATIONS BY LITHOGRAPHICALLY STRUCTURED ELECTROPHORETIC DEPOSITION
Stefan Schimpf, Bertram Schmidt, Otto-von-Guericke University

A HIGH FLOW PIEZOELECTRIC CERAMIC CHOKE FOR AN ADAPTIVE VEHICLE GAS SPRING DAMPER MANUFACTURED BY CERAMIC INJECTION AND CERAMIC INSERT MOLDING
Matthias Hartmann, Bertram Schmidt, Otto-von-Guericke University of Magdeburg (IMOS);
Frank Baerecke, Roland Kasper, Institute of Mobile Systems (IMS)

LTCC ELECTROMECHANICAL DEVICES BASED ON PZT THICK FILM TECHNOLOGY
Tomasz Zawada, Rasmus Lou-Moeller, InSensor A/S; Karsten Hansen, Erling Ringgaard, Ferroperm Piezoceramics A/S;
Dominik Jurkow, Leszek Golonka, Wroclaw University of Technology

ENHANCED STRUCTURE STABILIZATION AND PIEZOELECTRIC PROPERTIES OF PZT THIN FILMS FOR MEMS APPLICATIONS
Seung-Hyun Kim, Chang Young Koo, Dong-Hyun Ryu, INOSTEK Inc.; Brian L. Wardle, MIT; Angus I. Kingon, Brown University

BREAK IN THE EXHIBIT HALL: 3:20 PM - 3:50 PM

SESSION TP2: MICROSYSTEMS MATERIALS AND PROCESSES

Chairs:

Donald Plumlee, Boise State University;
Charles Lewinsohn, Ceramatec, Inc.
3:50 PM - 5:50 PM

THICK FILM CERAMIC CHIP PACKAGING FOR HEARING AIDS
John Dzarnoski, Doug Link, Starkey Laboratories, Inc.

MICRO-PATTERNING OF GREEN TAPE CERAMIC USING POWDER-BLASTING FOR LTCC MANUFACTURING
Yves Lacrotte, Farid Amalou, Weixing Yu, Marc P. Y. Desmulliez, Heriot-Watt University

CHARACTERIZATION OF MATERIAL BEHAVIOR OF LOW TEMPERATURE COFIRE CERAMICS AT ELEVATED TEMPERATURES
Christian Bienert, Andreas Roosen, University Erlangen-Nuremberg

SILVER IN LTCC - INTERFACIAL REACTIONS, TRANSPORT PROCESSES AND INFLUENCE ON PROPERTIES OF CERAMICS
Torsten Rabe, Carsten Glitzky, Hamid Naghib-zadeh, Gabriele Oder, Federal Institute for Materials Research and Testing (BAM); Markus Eberstein, W.C. Heraeus GmbH; Jörg Töpfer, University Applied Sciences Jena

STRUCTURING OF GREEN SHEETS AND LAMINATES FOR MULTILAYER CERAMIC MICROSYSTEMS WITH A COMBINED LASER AND PUNCHING MACHINE
Gunter Hagen, KMS Technology Center GmbH; Uwe Partsch, Fraunhofer IKTS

DEVELOPMENT OF NITE-SiC/SiC COMPOSITE COMPACT INTERMEDIATE HEAT EXCHANGER
Tatsuya Hinoki, Yi-Hyun Park, Satoshi Konishi, Kyoto University

SESSION TP3: ELECTROMAGNETIC PROPERTIES CHARACTERIZATION

Chairs:

Yoshihiko Imanaka, Fujitsu Limited
Minoru Osada, National Institute for Materials Science
3:50 PM - 5:50 PM

STRUCTURES AND DIELECTRIC PROPERTIES OF $\text{Bi}_{1.5}\text{Zn}_{1.0}\text{Nb}_{1.5}\text{O}_7$ CUBIC PYROCHLORE THIN FILMS PREPARED BY PULSED LASER DEPOSITION
Wei Ren, Xiaohua Zhang, Peng Shi, Aifeng Tian, Hong Xin, Xiaofeng Chen, Xiaoqing Wu, Xi Yao, Xi'an Jiaotong University

FABRICATION OF TERAHERTZ WAVE RESONATORS OF TWINNED PHOTONIC CRYSTALS WITH ALUMINA DIAMOND LATTICES BY USING MICRO-STEREOLITHOGRAPHY
Toshiki Niki, Soshu Kiriara, Osaka University

SIZE EFFECT AND DOMAIN CONTRIBUTION IN BARIUM TITANATE
Takaaki Tsurumi, Takuya Hoshina, Hiroaki Takeda, Tokyo Institute of Technology

ANTENNA CONCEPTS FOR CERAMIC MULTILAYER MODULES
P. Uhlig, M. Geissler, S. Holzwarth, J. Leiss, M. Martínez-Vázquez, IMST GmbH; D. Manteuffel, Christian-Albrechts-University of Kiel

HIGHLY ENHANCED DIELECTRIC PROPERTIES OF METAL-DIELECTRIC NANOCOMPOSITES PREPARED BY AEROSOL DEPOSITION METHOD
Jae-Hyuk Park, Jun Akedo, National Institute of Advanced Industrial Science and Technology (AIST)

BOTTOM-UP FABRICATION OF HIGH-K DIELECTRIC NANOFILMS USING OXIDE NANOSHEETS AS A BUILDING BLOCK
Minoru Osada, Takayoshi Sasaki, National Institute for Materials Science

RECEPTION IN EXHIBIT HALL: 6:00 PM - 7:30 PM

Wednesday, April 22

REGISTRATION: 7:30 AM - 5:00 PM

CONTINENTAL BREAKFAST: 7:30 AM - 8:30 AM

EXHIBIT HOURS: 10:00 AM - 4:00 PM
REFRESHMENT BREAK & LUNCH IN EXHIBIT HALL

SESSION WA1: INTERNATIONAL SESSION ON MICROSYSTEMS

Chairs:

Leszek Golonka, Wroclaw University of Technology;
Karl-Heinz Drüe, Technical University of Ilmenau
8:30 AM - 10:00 AM

LIQUID PHASE MORPHOLOGY CONTROL AND PATTERNING OF METAL OXIDES - TiO_2 , ZnO , BaTiO_3 , $\text{Eu:Y}_2\text{O}_3$ -
Yoshitake Masuda, National Institute of Advanced Industrial Science and Technology (AIST)

MATERIALS TECTONICS BY STRUCTURAL JOININGS: FABRICATION OF CERAMICS MICRO PATTERNS WITH DIELECTRIC POLYGON TABLETS FOR TERAHERTZ WAVE RESONATIONS BY USING STEREOLITHOGRAPHY
Soshu Kiriara, Noritoshi Ohota, Toshiki Niki, Masaru Kaneko, Osaka University

THICK-FILM PRESSURE / FORCE SENSORS ON DIFFERENT LTCC SUBSTRATES; A CHARACTERIZATION AND EVALUATION
Marija Kosec, Marko Hrovat, Hana Uršič, Janez Holc, Silvo Drnovšek, Jena Cilenšek, Josef Stefan Institute; Darko Belavič, Marina Santo Zarnik, HIPOT-RR; Jaroslaw Kita, University of Bayreuth

BREAK IN THE EXHIBIT HALL: 10:00 AM - 10:30 AM

SESSION WA2: DESIGN AND FABRICATION OF CERAMIC MICROSYSTEMS AND DEVICES

Chairs:

Torsten Rabe, Federal Institute for Materials Research and Testing (BAM);

Thomas Maeder, Ecole Polytechnique Fédérale de Lausanne

10:30 AM - 11:50 AM

LTCC FLOW-THROUGH AMPEROMETRIC SENSOR FOR GLUCOSE DETERMINATION

Karol Malecha, Leszek J. Golonka, Piotr Kurek, Wroclaw University of Technology; Dorota G. Pijanowska, Polish Academy of Sciences

REMOTE CONTROLLED VALVES FOR FLOW CONTROL IN LTCC-BASED MICROFLUIDIC DEVICES

Richard E. Eitel, Wenli Zhang, Nitin Satarkar, J. Zach Hilt, University of Kentucky

DESIGN AND ANALYSIS OF A LOW TEMPERATURE CO-FIRED CERAMIC MICRO-COMBUSTOR

Matthew McCrink, Donald Plumlee, Boise State University

STRUCTURATION OF THIN BRIDGE AND CANTILEVER STRUCTURES IN THICK-FILM TECHNOLOGY USING MINERAL SACRIFICIAL MATERIALS

Thomas Maeder, Caroline Jacq, Yannick Fournier, Wassim Hraiz, Peter Ryser, Ecole Polytechnique Fédérale de Lausanne

SESSION WA3: PROCESSING AND DESIGN OF INTEGRATED PASSIVES IN LTCC

Chair:

Jerry Aguirre, Kyocera America Inc.

10:30 AM - 11:50 AM

SYNTHESIS AND CHARACTERIZATION OF $(\text{Bi}_{1/2}\text{A}_{1/2})$ -MODIFIED

BaTiO_3 (A=Na, K) SEMICONDUCTING CERAMICS

H. Takeda, T. Hoshina, T. Tsurumi, Tokyo Institute of Technology; T. Shiosaki, P.-H. Xiang, Nara Institute of Science and Technology

LOW FIRED HIGH-K DIELECTRICS BURIED INTO LTCC SUBSTRATES

Hamid Naghib-zadeh, Carsten Glitzky, Torsten Rabe, Federal Institute for Materials Research and Testing (BAM)

HIGHLY INTEGRATED PASSIVE LTCC DEVICE WITH EMBEDDED HIGH-K CAPACITORS

Jens Müller, Rubén Perrone, Stefan Humbla, Matthias A. Hein, Ilmenau University of Technology; Polina Kapitanova, Dmitry Kholodnyak, Irina B. Vendik, Saint-Petersburg Electrotechnical University

DEFECTS AFFECTING DIELECTRIC PROPERTIES OF BaTiO_3 FILMS IN APPLYING AEROSOL DEPOSITION METHOD TO THIN FILM PROCESS

Song-Min Nam, Jong-Min Oh, Kwangwoon University

LUNCH IN THE EXHIBIT HALL: 12:00 PM - 1:20 PM

SESSION WP1: INTERACTIVE FORUM (POSTER SESSION)

One-on-One Interactive Forum. This is your chance for detailed interaction with authors whose work is too good to miss.

Chair:

Amy Moll, Boise State University

1:30 PM - 3:30 PM

EROSION OF LOW-TEMPERATURE CO-FIRED CERAMICS IN A RADIO FREQUENCY INDUCTIVELY COUPLED PLASMA

A. Miller, D. Plumlee, J. Browning, A. Moll, Boise State University

MEASUREMENT AND SIMULATION OF INTERDIGITAL CAPACITOR STRUCTURES WITH HIGH-PERMITTIVITY THIN FILMS

Clinton P. Scarborough, Grove City College; Steve Perini, Jeremy Accord, Joshua Robinson, George Semouchkin, Michael Lanagan, The Pennsylvania State University

DEVELOPMENT OF A CONTINUOUS FLOW POLYMERASE CHAIN REACTION DEVICE IN LOW TEMPERATURE CO-FIRED CERAMICS

A. J. Vissotski, D. G. Plumlee, A. J. Moll, Boise State University

FABRICATION AND CHARACTERISTICS OF DIELECTRIC FILMS BY USING PLASMA ASSISTED AEROSOL DEPOSITION METHOD

M. Mori, N. Akita, S. Baba, Ryukoku University; Jun Akedo, National Institute of Advanced Industrial Science and Technology

BREAK IN EXHIBIT HALL: 3:30 PM – 4:00 PM

SESSION WP2: LTCC STANDARDS

Chairs:

Howard Imhof, Metalor Technologies USA;

Michael Ehlert, Barry Industries Inc.

4:00 PM - 5:30 PM

LTCC STANDARDS SIG

Michael R. Ehlert, Barry Industries Inc.

LTCC STANDARDS VS. INEMI ROADMAP - A MATCH MADE IN HEAVEN?

Howard Imhof, Metalor Technologies USA; Michael R. Ehlert, Barry Industries Inc.

LTCC STANDARDS PROGRESS

Michael R. Ehlert, Barry Industries Inc.

Thursday, April 23

REGISTRATION: 7:30 AM - 12:00 PM

CONTINENTAL BREAKFAST: 7:30 AM - 8:30 AM

SESSION THA1: ADVANCED PACKAGING TECHNOLOGY

Chairs:

Martin Oppermann, EADS Deutschland GmbH;
Ken Peterson, Sandia National Laboratories

8:30 AM - 10:30 AM

INVESTIGATION ON THE POROSIFICATION BEHAVIOUR OF FIRED LTCC SUBSTRATES
A. Bittner, H. Seidel, R. Kautenburger, Saarland University; A. Roosen, University of Erlangen-Nuremberg;
U. Schmidt, Vienna University of Technology

PACKAGING OF A MEMS OPTICAL SWITCH DURING DEVELOPMENTAL TESTING
Thomas P. Swiler, Kenneth A. Peterson, Ernest J. Garcia, Sandia National Laboratories

UV-LASER DRILLED μ -VIAS IN DIELECTRIC LAYERS ON LTCC AS PART OF A BUILD-UP TECHNOLOGY
FOR HIGH DENSITY INTERCONNECTIONS
Karl-Heinz Drüe, Jens Müller, Ilmenau University of Technology

MEASUREMENT AND POTENTIAL PERFORMANCE OF EMBEDDED LTCC INDUCTORS UTILIZING
FULL TAPE THICKNESS FEATURE CONDUCTORS
Adam Boutz, William B. Kuhn, Kansas State University

PHOTOFORMABLE THICK FILM DIELECTRIC PROCESS OPTIMIZATION FOR REDUCED VIA SIZE
Doug Link, Starkey Laboratories, Inc.; M. A. Skurski, E.I. DuPont de Nemours & Co., Inc.

IMPROVED ISOLATION FOR LTCC TRANSCEIVER MODULES USING FULL-TAPE-THICKNESS FEATURES
Ken Peterson, Richard Knudson, Brian Duverneay, Sandia National Laboratories;
Greg Barner, Frank Smith, Matthew Johnson, Honeywell Federal Manufacturing & Technology

SESSION THA2: LTCC UNIVERSITY CONSORTIUM MEETING

Chairs:

W. Kinzy Jones, Florida International University;
Amy Moll, Boise State University

10:30 AM - 12:00 PM

Organization meeting to discuss the creation of a university network similar to MEMS exchange where university and industrial researchers could access LTCC labs in the network - either for an entire fabrication process or just for one piece of equipment.

For example:

If Boise State needed something isostatically laminated, they could send it to Florida International University to have it done for a very reasonable cost.

CONFERENCE CLOSING REMARKS: 12:00 PM

See next page for more information...

IEEE LTCC STANDARDS WORKING GROUP (P1787)

8:30 AM - 12:00 PM

NIST DIELECTRIC MEASUREMENT TUTORIAL

1:30 PM - 4:00 PM

IEEE LTCC STANDARDS WORKING GROUP (P1787)

Moderators:

Mike Smith, DuPont; Marian Hargis, Delphi Electronics and Safety; Mike Ehlert, Barry Industries Inc.

8:30 AM - 12:00 PM

The IEEE LTCC Standards Working Group (P1787) is responsible for writing the standard for measuring LTCC materials at high frequency and will be meeting to discuss the candidacy forms, balloting and voting procedures for electing the officers for the Working Group. In addition, the committee will review the document format required by the IEEE Standards Association.

Three subcommittees have been formed to write three substandard. The first subgroup is Measurement of Unmetallized LTCC chaired by Mike Smith. The second, Measurement of Metallized LTCC is chaired by Marian Hargis and the third group, Test Measurements Standard for thermo-physical properties of LTCC is led by Mike Ehlert.

During this session, the members will review the test procedures being written by the subcommittees, metallized, and unmetallized and thermo-physical properties of LTCC.

LUNCH: 12:00 PM - 1:30 PM
(*NOT PROVIDED - ON YOUR OWN*)

NIST DIELECTRIC MEASUREMENT TUTORIAL

Instructor: Dr. Michael Janezic, NIST

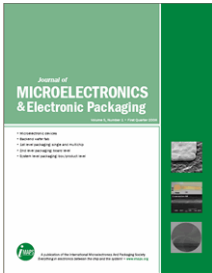
1:30 PM - 4:00 PM

The IEEE LTCC Standards Working Group (P1787) is currently developing a series of standard test methods and best practice guides to support the LTCC industry. A key component will be the standardization of high-frequency techniques to measure the broadband dielectric properties of LTCC substrates. To support this effort, the National Institute of Standards and Technology (NIST) have developed new measurement methods to characterize the high-frequency dielectric properties of unmetallized LTCC substrates. In this tutorial, Dr. Michael Janezic, a member of NIST Advanced Materials Metrology Project, will summarize the state-of-the-art nondestructive dielectric measurement techniques and overview the latest measurement procedures in a series of live dielectric substrate measurement demonstrations.

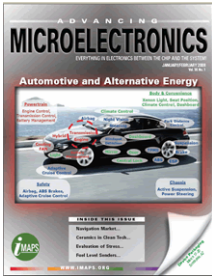


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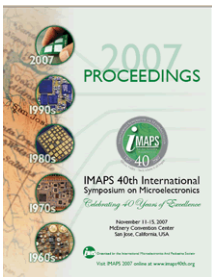


IMAPS on-line library, *iKnow Microelectronics*, provides a centralized, searchable database of the technical papers and slides from IMAPS events and publications offered by the Society.



iKnow Microelectronics currently contains more than 2,700 articles and publications from symposia, conferences, workshops, web meetings and other publications from 2003 through 2008. IMAPS will continue to incrementally load additional historical publications from 2002 and earlier throughout 2008.

iKnow Microelectronics contains the following publications in a Downloadable, CD-rom and/or Printed format:



- **Journal of Microelectronics and Electronic Packaging** (JMEP)
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Upcoming Events...

IMAPS and SEMI Topical Workshop on Wire Bonding

*This event will run parallel to the Adhesives/Encapsulants/Molding workshop
with one admission fee prior to SEMICON West 2009 - July 14-16*

**Moscone Center
San Francisco, California - USA
July 13, 2009**

Visit www.imaps.org/wirebonding for more information

International Conference on High Temperature Electronics Network (HiTEN) Oxford, UK

September 13 - 16, 2009

Visit www.imaps.org/hiten for more information

Advanced Technology Workshop on RF and Microwave Packaging The Crowne Plaza San Diego San Diego, California - USA September 22 - 24, 2009

Visit www.imaps.org/rf for more information

Advanced Technology Workshop on Thermal Management Dinah's Garden Hotel Palo Alto, California - USA October 5 - 8, 2009

Visit www.imaps.org/thermal for more information

42nd International Symposium on Microelectronics (IMAPS 2009)

**San Jose Convention Center
San Jose, California - USA
November 1 - 5, 2009**

Visit www.imaps2009.org for more information

Featuring Invited Sessions on Intelligent Uses of Precious Metals in Microelectronics

*These invited sessions will run as part of the technical program
at the IMAPS 2009 Symposium - November 3-5.*

San Jose, California - USA

Visit www.imaps.org/preciousmetals for more information

**You can also view the IMAPS Calendar at
www.imaps.org/calendar**

Upcoming Events...

8th Pacific Rim Conference on Ceramic & Glass Technology Includes 2009 Annual Meeting of the International Commission on Glass (ICG)

Hyatt Regency Vancouver
Vancouver, British Columbia, Canada

May 31 - June 5, 2009

www.ceramics.org/pacrim8

UNITECR 2009-11th Biennial Worldwide Conference on Refractories

Pestana Bahia Hotel

Salvador, Brazil

October 13 - 16, 2009

www.unitecr2009.org

Materials Science & Technology 2009 Conference & Exhibition (MS&T'09) & ACerS 111th Annual Meeting

David L. Lawrence Convention Center

Pittsburgh, Pennsylvania, USA

October 25 - 30, 2009

<http://matscitech.org/>

ACerS Ceramic Materials Short Courses in conjunction with MS&T'09

- Fundamentals of Glass Science and Technology Sintering of Ceramics
 - Solids Flow in Storage and Process
- Dynamic Behavior of Structural and Armor Ceramics
 - Introduction to Ceramic Phase Diagrams
 - Mechanical Properties of Ceramic and Glass

October 29 - 30, 2009

www.ceramics.org/shortcourses

34th International Conference & Exposition on Advanced Ceramics & Composites

Hilton Daytona Beach Resort & Ocean Center

Daytona Beach, Florida, USA

January 24 - 29, 2010

www.ceramics.org/daytona2010

Materials Challenges Facing Adoption of Alternative Fuels

Hilton Cocoa Beach Oceanfront

Cocoa Beach, Florida, USA

February 21 - 24, 2010

www.ceramics.org/meetings/

Materials Science & Technology 2010 Conference & Exhibition (MS&T '10) & ACerS 112th Annual Meeting

George R. Brown Convention Center

Houston, Texas, USA

October 17 - 21, 2010

www.ceramics.org/meetings/

3rd International Congress on Ceramics

Osaka International Convention Center

Osaka, Japan

November 14 - 18, 2010

www.ceramics.org/meetings/

Welcome CICMT Exhibitors

April 21 - 22, 2009

Tuesday - April 21 10:00 am - 7:30 pm (Exhibit Hours)

Refreshment Breaks, Lunch & Reception in Exhibit Hall.

Wednesday - April 22 10:00 am - 4:00 pm (Exhibit Hours)

Refreshment Break & Lunch in Exhibit Hall.

Exhibitors (as of April 3rd)

AI Technology, Inc.

Cyber-Technologies

DuPont Electronic Technologies

ESL ElectroScience

FRT of America, LLC

Kyocera America, Inc.

Pac Tech

Sonoscan, Inc.

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**A SPECIAL THANKS
TO THE
2009 CICMT CONFERENCE
COMMITTEE!**

(Organizing Committee & Session Chairs)

**WE ARE GRATEFUL FOR
YOUR COMMITMENT!**

**A SPECIAL THANKS
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IS
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