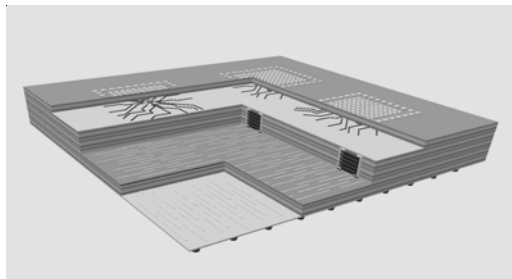


IMAPS/ACerS 5th International Conference and Exhibition on Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT)

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



GENERAL CO-CHAIRS:

Michael Lanagan, Pennsylvania State University
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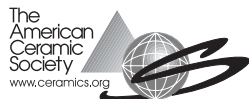
CO-SPONSORED BY:

INTERNATIONAL MICROELECTRONICS AND
PACKAGING SOCIETY (IMAPS)

*Bringing Together the Entire Microelectronics
Supply Chain!*

&

THE AMERICAN CERAMIC SOCIETY (ACerS)



CICMT SESSION OUTLINE

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. Apblett, Sandia National Laboratories; Seung-Hyun Kim, INOSTEK Inc.

Session TP1: Ceramic Actuators in Microsystems (Piezoelectrics Materials and Devices)

Chairs: Ken Peterson, Sandia National Laboratories; Fred Barlow, University of Idaho

Session TP2: Nanoprocessing and Co-Firing and Dimensional Control

Chairs: Yoshihiko Imanaka, Fujitsu Limited; Daniel S. Krueger, Honeywell FM&T; Minoru Osada, National Institute for Materials Science

Session TP3: Microsystems Materials and Processes

Chairs: Donald Plumlee, Boise State University; Charles Lewinsohn, Ceramatec, Inc.

Session TP4: High Frequency Characterization and Simulation

Chairs: Michael Janezic, NIST; Jack Casey, Agilent

Session WA1: International Session on Microsystems

Chairs: Leszek Golonka, Wroclaw University of Technology; Karl-Heinz Drüe, Technical University of Ilmenau

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

Chairs: Richard Eitel, University of Kentucky; Jerry Aguirre, Kyocera America Inc.

Session WP1: Interactive Forum (Poster Session)

Chair: Jack Casey, Agilent

Session WP2: LTCC Standards

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

Session THA1: Advanced Packaging Technology

Chairs: Martin Oppermann, EADS Deutschland GmbH; Paul Collander, Poltronic

Session THA2: LTCC University Consortium Meeting

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

Early Registration Discount Ends: March 20, 2009
Hotel Cut-off: March 20, 2009

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, Walters 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: TBD 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. Apblett, 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) Chair: Ken Peterson, Sandia National Laboratories; Fred Barlow, University of Idaho
	Session TP2: Nanoprocessing and Co-Firing and Dimensional Control Chairs: Yoshihiko Imanaka, Fujitsu Limited; Daniel S. Krueger, Honeywell FM&T; Minoru Osada, National Institute for Materials Science
3:20 pm - 3:50 pm	Break in Exhibit Hall
Topical Session: 3:50 pm - 5:50 pm	Session TP3: Microsystems Materials and Properties Chair: Donald Plumlee, Boise State University; Charles Lewinsohn, Ceramtec, Inc.
	Session TP4: High Frequency Characterization and Simulation Chairs: Michael Janezic, NIST; Jack Casey, Agilent
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 - 12:10 pm	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 Chairs: Richard Eitel, University of Kentucky; Jerry Aguirre, Kyocera America Inc.
12:10 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: Jack Casey, Agilent
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; Paul Collander, Poltronic
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

*M*essage from the General Co-Chairs

The CICMT Conference is back in Denver after a successful meeting in Munich last year. This event will bring 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. Tabletop exhibits are available to provide an opportunity to meet suppliers who support our industry. To reserve space, visit www.cicmt.org.

We thank our session chairs and technical co-chairs Amy Moll (Boise State University), Jens Müller (Technical University Ilmenau) and Takaaki Tsurumi (Tokyo Institute of Technology), and the IMAPS staff for their support and leadership in putting this program together.

Do not miss THE ceramic interconnect and ceramic microsystems event in Denver this year.

The 2010 CICMT is planned for Tokyo and more details will be available at our CICMT website in the future.

Michael Lanagan and Jun Akedo
General Co-Chairs

THANK YOU

A SPECIAL THANK YOU
TO ALL OF THE MEMBERS ON THE
ORGANIZING COMMITTEE,
SESSION CHAIRS AND SPEAKERS
WHO HAVE MADE CICMT 2009
A GREAT SUCCESS!

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, WALTERS 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: TBD

SPEAKER: WALTER SMETANA, VIENNA UNIVERSITY OF TECHNOLOGY

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

CICMT SPEAKER/PRESENTATION INFORMATION:

FINAL MANUSCRIPTS FOR THE CICMT PROCEEDINGS ARE DUE **FEBRUARY 20, 2009**. **REQUIRED FOR ORAL AND POSTER PRESENTERS.**
SEND YOUR FINAL MANUSCRIPT VIA E-MAIL TO [JMORRIS@IMAPS.ORG](mailto:jmorris@imaps.org), IN PDF FORMAT ONLY (PDF CAN BE IN COLOR).

PowerPoint/Presentation file used during session: ***Speaker's responsibility to bring to session on USB and/or CD***
(recommended to have back-up on personal laptop, CD-ROM, or memory stick).
Laptops will be provided by IMAPS in the session room.

Speakers must register for the conference at the reduced speaker rate.
Advance registration deadline is March 20, 2009. Visit www.cicmt.org for more information.

SELECTED MANUSCRIPTS FROM CICMT WILL BE CONSIDERED FOR PUBLISHING IN THE *JOURNAL OF MICROELECTRONICS AND ELECTRONIC PACKAGING* (IMAPS) OR THE *INTERNATIONAL JOURNAL OF APPLIED CERAMIC TECHNOLOGY* (ACERS).

INVITATIONS WILL BE MADE SEPARATELY.

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

Dragos Seghete, Shih-Hui Jen, Jacob A. Bertrand, Steven M. George, University of Colorado

DEFECT INSPECTION OF ALD/MLD-BASED BARRIER COATINGS

Yadong Zhang, Yu-Zhong Zhang, David C. Miller, Jacob A. Bertrand, Shih-Hui Jen, Ronggui Yang, Martin L. Dunn, Steven M. George, Y. C. Lee, University of Colorado at Boulder

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, 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

(BA_{0.6},SR_{0.4})TiO₃ 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)

LUNCH IN 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: Ken Peterson, Sandia National Laboratories;
Fred Barlow, University of Idaho
1:40 pm - 3:20 pm

PIEZOELECTRIC SINGLE CRYSTAL PMN-PT: FIELD-INDUCED ACTUATION AT TEMPERATURE

James F. Carroll III, D. A. Payne, J. Tian, P. Han, Sandia National Laboratories

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, Frank Baerecke, Roland Kasper, Bertram Schmidt, University of Magdeburg (IMOS)

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, C. Y. Koo, D-H. Ryu, Brian L. Wardle, Angus I. Kingon, INOSTEK Inc.

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-Il 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 Kirihaara, Jun Akedo, Osaka University

DIRECT WRITE OF METALS AND FUNCTIONAL MATERIALS FOR THREE-DIMENSIONAL INTERCONNECTS AND ANTENNAS

Paul G. Clem, James F. Carroll, Adam W. Cook, Eric D. Branson, Christopher 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

SESSION TP2: NANOPROCESSING AND CO-FIRING AND DIMENSIONAL CONTROL

Chairs: Yoshihiko Imanaka, Fujitsu Limited; Daniel S. Krueger, Honeywell FM&T; Minoru Osada, National Institute for Materials Science
1:40 pm - 3:20 pm

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)

FABRICATION OF HIGH-K DIELECTRIC NANOFILMS USING SOLUTION-BASED BOTTOM-UP NANOTECHNOLOGY

Minoru Osada, Takayoshi Sasaki, National Institute for Materials Science

EFFECT OF PAS SYSTEM ON CONSTRAINED SINTERING OF LARGE AND THICK SIZE CERAMIC SUBSTRATE

Byeung Gyu Chang, Kipyoo Hong, Yongsuk Kim, WonHee Yoo, Yongsoo Oh, Samsung Electro-Mechanics Co., Ltd.; Torsten Rabe, Federal Institute for Materials Research and Testing (BAM)

PRESSURE SINTERING OF LTCC-MODULES WITH INTEGRATED FERRITE LAYERS

Carsten Glitzky, Torsten Rabe, Jörg Töpfer, Christina Modes, Annette Kipka, Federal Institute for Material Research and Testing (BAM)

PREDICTING LTCC FIRING SHRINKAGE: A RESPONSE SURFACE ANALYSIS STUDY

Michael Girardi, Gregg Barner, Cristie Lopez, Brent Duncan, Larry Zawicki, Honeywell Federal Manufacturing and Technologies

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

SESSION TP3: MICROSYSTEMS MATERIALS AND PROCESSES

Chairs: Donald Plumlee, Boise State University;
Charles Lewinsohn, Ceramtec, 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 POWDERBLASTING FOR LTCC PACKAGING
Yves Lacrotte, Farid Amalou, Weixing YuMarc, P. Y. Desmulliez, Heriot-Watt University

MATERIAL BEHAVIOR OF LOW TEMPERATURE CO-FIRED CERAMICS AT ELEVATED TEMPERATURES AND ITS IMPACT ON APPLICATIONS
Christian Bienert, Andreas Roosen, University of Erlangen-Nuremberg

SILVER IN LTCC - INTERFACIAL REACTIONS, TRANSPORT PROCESSES AND INFLUENCE ON PROPERTIES OF CERAMICS
Torsten Rabe, Carsten Glitzky, Hamid Naghib-zadeh, Gabriele Oder, Markus Eberstein, Federal Institute for Materials Research and Testing (BAM)

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 TP4: HIGH FREQUENCY CHARACTERIZATION AND SIMULATION

Chairs: Michael Janezic, NIST;
Jack Casey, Agilent

3:50 pm - 5:10 pm

BISMUTH PYROCHLORE BASED DIELECTRIC THIN FILMS FOR TUNABLE APPLICATIONS
Wei Ren, Peng Shi, Xiaohua Zhang, Xin Yan, Xiaoqing Wu, Xiaofeng Chen, 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
Peter Uhlig, Sybille Holzwarth, Matthias Geissler, IMST GmbH

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 BREAKS & 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 -TiO₂, ZnO, BaTiO₃, Eu:Y₂O₃-
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, Darko Belaviè, Hana Uršič, Jaroslav Kita, Janez Holc, Silvo Dmrovšek, Jena Cilenšek, Josef Stefan Institute

BREAK IN 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 - 12:10 pm

LTCC FLOW-THROUGH AMPEROMETRIC DETECTOR FOR GLUCOSE DETERMINATION

Karol Malecha, Dorota Pijanowska, Leszek Golonka, Piotr Kurek, Wrocław University of Technology

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

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

FABRICATION TECHNOLOGY OF MICRO SOFCs AND MODULES

Toshio Suzuki, Y. Funahashi, T. Yamaguchi, Y. Fujishiro, M. Awano, National Institute of Advanced Industrial Science and Technology

DESIGN AND ANALYSIS OF A MICRO-COMBUSTION DEVICE IN LTCC

Matthew H. McCrink, Don Plumlee, Boise State University

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

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

SESSION WA3: PROCESSING AND DESIGN OF INTEGRATED PASSIVES IN LTCC

Chairs: Richard Eitel, University of Kentucky; Jerry Aguirre, Kyocera America Inc.
10:30 am - 12:10 pm

SYNTHESIS AND CHARACTERIZATION OF $(\text{Bi}_{1/2}\text{A}_{1/2})$ -MODIFIED BaTiO_3 (A=NA, K) SEMICONDUCTING CERAMICS

Hiroaki Takeda, Takuya Hoshina, Takaaki Tsurumi, Tokyo Institute of Technology

LOW FIRED X7R DIELECTRICS BURIED INTO LTCC SUBSTRATES

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

FABRICATION OF CAPACITOR EMBEDDED LTCC SUBSTRATE FOR RF APPLICATIONS

Ki Pyo Hong, Yong Seok Choi, Seung Gyo Jeong, Ji Hwan Shin, Byeung Gyu Chang, Samsung Electro-Mechanics

HIGHLY INTEGRATED PASSIVE LTCC DEVICE WITH EMBEDDED HIGH-K CAPACITORS

Jens Müller, Rubén Perrone, Polina Kapitanova, Dmitry Kholodnyak, Irina B. Vendik, Stefan Humbla, Matthias A. Hein, TU Ilmenau, ZIC MacroNano®

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 EXHIBIT HALL: 12:10 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: Jack Casey, Agilent

1:30 PM - 3:30 PM

EROSION OF LOW-TEMPERATURE CO-FIRED CERAMICS IN A RADIO FREQUENCY INDUCTIVELY COUPLED PLASMA
Alex Miller, Donald Plumlee, Jim Browning, Amy Moll, Boise State University

MEASUREMENT AND SIMULATION OF INTERDIGITAL CAPACITOR STRUCTURES WITH HIGH-PERMITTIVITY THIN FILMS
Clinton P. Scarborough, Steve Perini, Joshua Robinson, George Semouchkin, Michael Lanagan, Penn State University

3-D Si CHIP STACKING AND INTERCONNECTION PROCESS USING THROUGH-Si-VIA
Wonjoong Kim, Ji Heon Jun, Hee Yul Lee, In Rak Kim, Young Gon Lee, Jae Pil Jung, University of Seoul

CONTINUOUS FLOW POLYMERASE CHAIN REACTION IN LOW TEMPERATURE CO-FIRED CERAMICS
Andrew Vissotski, Don Plumlee, Amy Moll, Boise State University

FABRICATION OF 6063 AL/60SiC-35AL-5Si GRADED MULTILAYER ELECTRONIC PACKAGING MATERIALS BY SPARK PLASMA SINTERING
Lianmeng Zhang, Wuhan University of Technology

FABRICATION AND CHARACTERISTICS DIELECTRIC FILM BY USING PLASMA ASSISTED AEROSOL DEPOSITION METHOD
Masakazu Mori, Naoki Akita, So Baba, Jun Akedo, Ryukoku University

MICRO-REACTOR IN LTCC TECHNOLOGY FOR BIODIESEL PRODUCTION
Mário Ricardo R. Gongora-Rubio, Marcio Rodrigues da Cunha, Adriano Marim Oliveira, Instituto de Pesquisas Tecnológicas do Estado de São Paulo

ADHESIVE BONDED JOINTS OF CERAMIC FIBER COMPOSITES FOR HIGH TEMPERATURE
Vijay K. Srivastava, Shradha Singh, Banaras Hindu University

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?

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

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;

Paul Collander, Poltronic

8:30 am - 10:30 am

INVESTIGATION ON THE POROSIFICATION BEHAVIOUR OF FIRED LTCC SUBSTRATES

Achim Bittner, H. Seidel, R. Kautenburger, A. Roosen, U. Schmidt, Saarland University

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, Technical University of Ilmenau

MEASUREMENT AND 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.; Mike Skurski, E.I. DuPont de Nemours & Co., Inc.

IMPROVED ISOLATION FOR LTCC TRANSCEIVER MODULES USING FULL-TAPE-THICKNESS FEATURES

Ken A. Peterson, Rick Knudson, Brian Duverneay, Sandia National Laboratories;

Gregg Barner, Frank Smith, 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

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.

CICMT Tabletop Exhibition

“An opportunity to talk to industry leaders”

April 21 - 22, 2009

Tuesday - April 21 **10:00 AM - 7:30 PM (Exhibit Hours)**

Refreshment Breaks, Lunch & Reception will be held in the Exhibit Hall.

Wednesday - April 22 **10:00 AM - 4:00 PM (Exhibit Hours)**

Refreshment Break & Lunch will be held in the Exhibit Hall.

Tabletop Registration Fees

	On or before 3/20/09	After 3/20/09
IMAPS/ACerS Corporate/Organizational Member	\$550 per booth	\$650 per booth
IMAPS/ACerS Non-Corporate/Organizational Member	\$700 per booth	\$800 per booth

Included With Your Registration

- one (1) six foot draped table
- two (2) chairs
- carpeting
- one (1) Technical Proceedings CD-ROM
- one (1) List of Attendees (*Sent after the event*)
- Exhibit Hall admission for two (2) tabletop personnel

Additional tabletop personnel are welcome at an extra cost of \$30 per person.

Registrations for the full conference are not included, but are available at an additional cost.

Shipments should be sent directly to the hotel. You save money because no service contractor is involved!

The Curtis Hotel
1405 Curtis Street
Denver, Colorado 80202
Phone: 800-525-6651

Cancellation Policy

Tabletop cancellations made on or before 3/20/09 will receive a refund minus \$100 handling fee.

Tabletops cancelled after 3/20/09 will not be refunded.

For more information visit www.cicmt.org or contact:

Ann Bell, IMAPS (abell@imaps.org; 202-548-8717)

Marketing Feature Available for Exhibitors

IMAPS offers all exhibitors the option of providing advertising information about company products, services and contact information to be included on the Technical Proceedings CD-ROM. These CD-ROMs are provided to all technical conference attendees and are for sale through IMAPS to all industry professionals.

This unique feature will promote an unlimited amount of promotional material for the Exhibitor's products and abilities much longer than just the Conference. **There is no charge for this optional feature, but the deadline is firm.**

Submissions must be sent electronically in one (1) file, either PDF or Word that is easy to open, not password-protected and in a logical format. Any materials not sent in the required format or arrives after the deadline, may not appear on the CD-ROM.

Send files to bschieman@imaps.org on or before March 20, 2009.

Upcoming Events...

**Advanced Technology Workshop on
Printed Devices and Applications**
International Plaza Resort
Orlando, Florida - USA
February 25 - 27, 2009

Visit www.imaps.org/printed for more information

Global Business Council (GBC) Spring Conference
Co-located with Device Packaging Conference and Exhibition
Radisson Fort McDowell Resort and Casino
Scottsdale, Arizona - USA
March 8 & 9, 2009

Visit www.imaps.org/gbc for more information

**International Conference and Exhibition on
Device Packaging**
Radisson Fort McDowell Resort and Casino
Scottsdale, Arizona - USA
March 9 - 12, 2009

Visit www.imaps.org/devicepackaging for more information

**Advanced Technology Workshop on
Automotive Microelectronics and Packaging**
Doubletree Hotel
Dearborn, Michigan - USA
May 11 - 14, 2009

Visit www.imaps.org/automotive for more information

**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

**IMAPS and SEMI Topical Workshop on
Adhesives/Encapsulants/Molding**

*This event will run parallel to the Wire Bonding 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/aem 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

**Topical Workshop on
Intelligent Uses of Precious Metals in Microelectronics**
This event will run immediately following the IMAPS 2009 Symposium - November 1-5.
San Jose, California - USA
November 5 - 6, 2009

Visit www.imaps.org/preciousmetals for more information

Upcoming Events...

**St. Louis Section and the Refractory Ceramics Division 45th
Annual Symposium**

Hilton St. Louis Airport Hotel
St. Louis, Missouri, USA

March 25 - 26, 2009

www.ceramics.org

**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://matsscitech.org/>

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

- 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/

REGISTRATION FORM

Ceramic Interconnect and Ceramic Microsystems Technologies Conference (CICMT): April 21 - 23, 2009

REGISTER ON-LINE AT WWW.CICMT.ORG

Dr. Mr. Ms. IMAPS Member ID# _____ ACerS 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 3/20/09**

CONFERENCE FEES

(On or before 3/20) (After 3/20)

<input type="checkbox"/> IMAPS Member	\$575	\$675
<input type="checkbox"/> ACerS Member	\$575	\$675
<input type="checkbox"/> Non-member*	\$700	\$800

*Nonmember fee includes one-year individual membership in your choice of

IMAPS or ACerS. Check one: IMAPS ACerS

<input type="checkbox"/> Speaker <input type="checkbox"/> Chair <input type="checkbox"/> Chapter Officer	\$400	\$500
<input type="checkbox"/> Student	\$200	\$300
<input type="checkbox"/> Exhibits Only	\$30	\$30

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- Direct Mail Website E-Mail
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ADDITIONAL PURCHASES

<input type="checkbox"/> Guest/Family Member (meals only)	\$200	\$200
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<input type="checkbox"/> CD Proceedings (Non-Member Rate)	\$300	\$300
<input type="checkbox"/> Add to Ship in the US	\$7	\$7
<input type="checkbox"/> Add to Ship Overseas	\$25	\$25

Tabletop Exhibit (April 21 & 22)

<input type="checkbox"/> IMAPS <input type="checkbox"/> ACerS (Corporate/Org. Member)	\$550	\$650
<input type="checkbox"/> Non-member	\$700	\$800
<input type="checkbox"/> Yes, we will participate in the CD-ROM*	FREE	

*Must be submitted electronically as a Word or PDF file to Brian Schieman (bschieman@imaps.org) no later than **March 20, 2009**. Exhibit cancellation made on or before 3/20/09 will be refunded minus \$100 cancellation fee, no refund will be given after that date.

Housing (Hotel Cut-off is *March 20, 2009*)

Housing Accommodations **must** be made directly to:

The Curtis Hotel
1405 Curtis Street
Denver, Colorado 80202
Phone: 800-525-6651

When making reservation by phone, please reference
Ceramic Interconnect Conference.

TO RESERVE ROOM ON-LINE, VISIT:

WWW.THECURTIS.COM; ENTER DATES ON HOMEPAGE, THEN ON THE
NEXT SCREEN ENTER RATE CODE **GRPIMP**.

STANDARD: \$199; UPGRADED: \$229

PAYMENT

CICMT09

Registration Fee: \$ _____

Additional Purchases: \$ _____

Tabletop Exhibit: \$ _____

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202-548-4001; Fax: 202-548-6115. Additional information? E-mail:
IMAPS@imaps.org, or visit our web site: <http://www.imaps.org>.
Cancellations will be refunded (less a \$50 processing fee) only if written
notice is postmarked on or before **Monday, April 6, 2009**. No refunds will
be issued after that date.

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