

First IEEE MTT-S International Microwave Workshop Series in Region 9 on Signal Integrity and High-Speed Interconnects

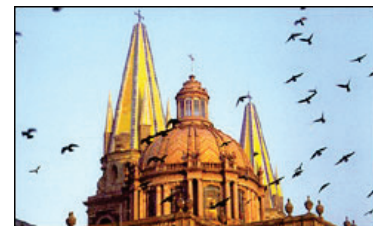
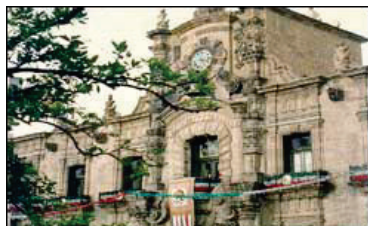
Dates: February 19-20, 2009
Place: Guadalajara, Mexico



IEEE MTT-S International Microwave Workshop Series
on Signal Integrity and High-Speed Interconnects

FEBRUARY 19-20, 2009 / GUADALAJARA, MEXICO

www.imws2009-r9.org



Workshop Technical Focus

- High-speed interconnects (system, PCB, package and IC levels)
- Electromagnetic compatibility (design, testing and standards)
- Measurement techniques for EMC and high frequency links
- CAD techniques for EM-based modeling, simulation and optimization
- Crosstalk and coupling effects
- Signal integrity
- State-of-the-art interconnects, including SIW, EBG and metamaterial structures
- High-speed digital techniques
- Pre-emphasis, equalization and modulation techniques
- Other relevant microwave engineering topics

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- Andreas Weisshaar, Oregon State University, USA
- John W. Bandler, McMaster U. and Bandler Corp., Canada
- Ram Achar, Carleton University, Canada
- Q.J. Zhang, Carleton University, Canada
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- Richard Mellitz, Intel Columbia, USA
- Telesphor Kamgaing, Intel Arizona, USA
- Mike Resso, Agilent Technologies, USA
- Peter Aaen, Freescale Semiconductor
- James C. Rautio, Sonnet Software Inc., USA
- Wolfgang Hoefler, Faustus Scientific Corp., Canada
- Peter Thoma, CST GmbH, Germany

Call for Papers



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The IEEE MTT-S Administrative Committee (AdCom) has recently passed a resolution of its Transnational Committee to create and develop the IEEE MTT-S International Workshop Series (IMWS), which will complement the existing workshops of the MTT-S International Microwave Symposia. The purpose of this new platform is to boost and promote MTT-S technical and educational activities as well as MTT-S international exchanges and collaborations. Several workshops covering different topics of MTT-S interest will be developed each year at a worldwide scale, spreading in various continents and countries.

The Technical Program Committee of the 2009 IEEE MTT-S International Microwave Workshop Series in Region 9 (IMWS2009-R9) wishes to invite original contributions to this event, which will be held during February 19-20, 2009, in Guadalajara, Mexico.

The workshop includes, but is not limited to, the following topics:

- ✦ High-speed interconnects (system, PCB, package and IC levels)
- ✦ Electromagnetic compatibility (design, testing and standards)
- ✦ Measurement techniques for EMC and high frequency links
- ✦ CAD techniques for EM-based modeling, simulation and optimization
- ✦ Crosstalk and coupling effects
- ✦ Signal integrity
- ✦ State-of-the-art interconnects, including SIW, EBG and metamaterial structures
- ✦ High-speed digital techniques
- ✦ Pre-emphasis, equalization and modulation techniques
- ✦ Other relevant microwave engineering topics

Papers submission: Manuscripts must be submitted in PDF format for consideration as part of the technical program (no hard copies accepted). Papers must conform to the IMWS-2009 template (4-page length). Accepted and presented papers will be published on-line in IEEE *Xplore*. Please visit www.imws2009-r9.org for further details.

Deadlines

Paper submission for review: October 6, 2008

Notification of acceptance: October 27, 2008

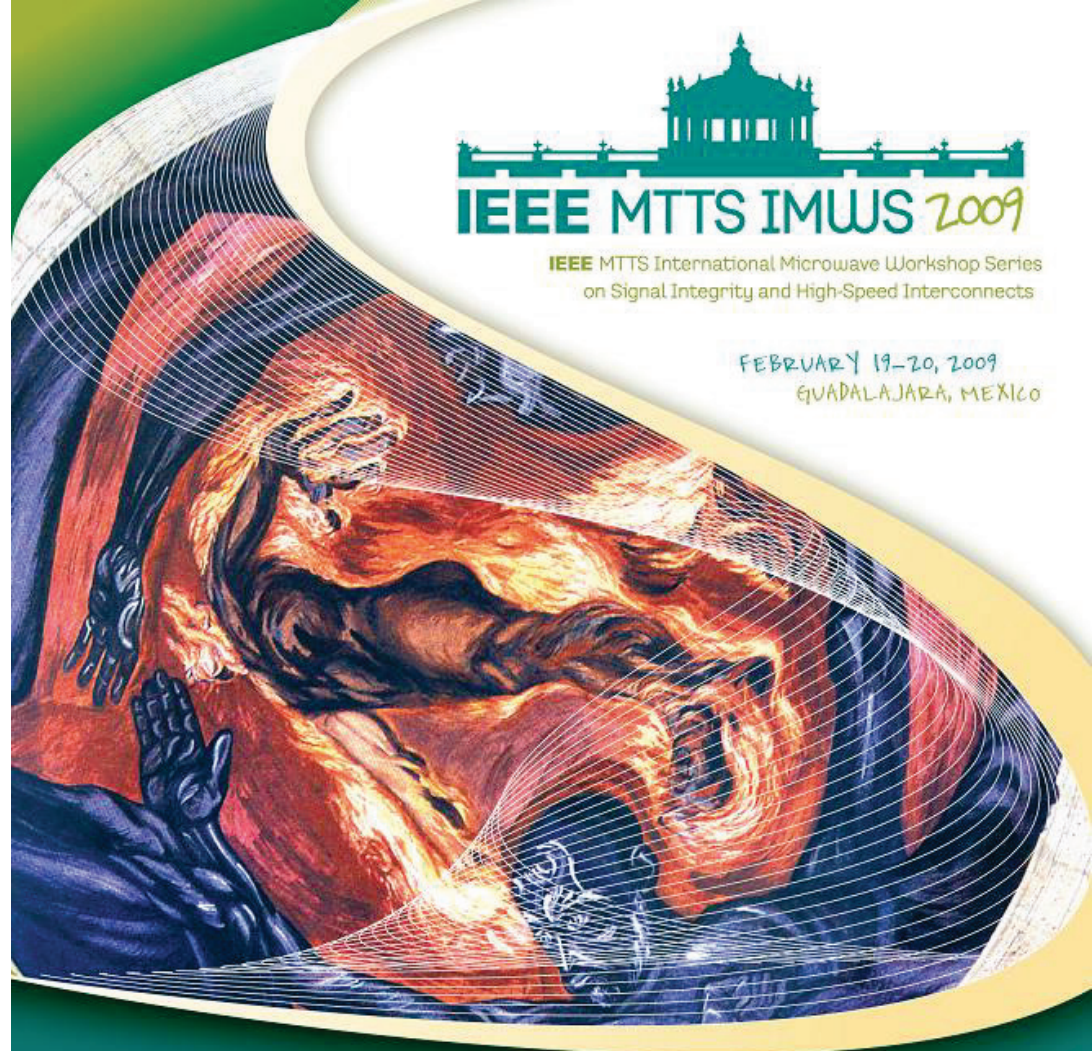
Final paper submission: November 14, 2008

Technical Program Committee

José E. Rayas-Sánchez (Co-Chair), ITESO, Mexico
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Wolfgang Hofer, Faustus Scientific Corp., Canada
Peter Thoma, CST GmbH, Germany

Poster



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on Signal Integrity and High-Speed Interconnects

FEBRUARY 19-20, 2009
GUADALAJARA, MEXICO

THE WORKSHOP TECHNICAL CONTENTS INCLUDES,
BUT IS NOT LIMITED TO, THE FOLLOWING TOPICS:

- ▶ High-speed interconnects (system, PCB, package and IC levels)
- ▶ Electromagnetic compatibility (design, testing and standards)
- ▶ Measurement techniques for EMC and high frequency links
- ▶ CAD techniques for EM-based modeling, simulation and optimization
- ▶ Crosstalk and coupling effects
- ▶ Signal integrity
- ▶ State-of-the-art interconnects, including SIW, CBG and metamaterial structures
- ▶ High-speed digital techniques
- ▶ Pre-emphasis, equalization and modulation techniques
- ▶ Other relevant microwave engineering topics

Paper submission for review: October 6, 2008

Notification of acceptance: October 27, 2008

Final paper submission: November 14, 2008

web site: www.imws2009-rg.org



IEEE



ITESO



Workshop Numeralia

- 42 papers were submitted to our workshop, from the following countries:

Brazil, Canada, Colombia, Denmark, Egypt, France, Iceland, India, Iran, Japan, Mexico, Pakistan, Spain, Taiwan, and USA

- We accepted 25 excellent papers, from industry and academia (59% acceptance rate)
- Distinguished IEEE MTT-S authorities attended the workshop

Thursday 19		
Time	Activity	Description
7:00 - 8:30	Registration	
8:30 - 9:00	Opening Remarks	Inaugural Keynote Speech , by Dr. Józef W. Modelski, IEEE MTT-S President
9:00 - 9:30	Session T1	Paper T1-1 QFN-based Millimeter Wave Packaging to 80GHz Eric A. Sanjuan and Sean S. Cahill BridgeWave Communications, Inc., Santa Clara, CA, USA
9:30 - 10:00		Paper T1-2 FDTD Modeling Applications in Ultrahigh-Speed Interconnects and Electromagnetic Compatibility of Complex Packages Jamesina J. Simpson University of New Mexico, Albuquerque, NM, USA
10:00 - 10:30		Paper T1-3 Impact of the Configuration of Ground Vias on the Performance of Vertical Transitions Used in Electronic Packages Svetlana C. Sejas-García ^{1,2} , Gerardo Romo ² , Reydezel Torres-Torres ¹ ¹ INAOE (Instituto Nacional de Astrofísica, Óptica y Electrónica), Puebla, Mexico, ² Intel Mexico Research Center, Tlaquepaque, Mexico
10:30 - 11:00	Coffee Break	
11:00 - 11:30	Session T2	Paper T2-1 Substrate Integrated Waveguide (SIW) Filter: Design Methodology and Performance Study G. Romo ¹ , A.Ciccomancini Scogna ² ¹ Intel Tecnología de Mexico, Guadalajara, Mexico ² CST, Framingham, MA, USA
11:30 - 12:00		Paper T2-2 An Improved EM-Based Design Procedure for Single-Layer Substrate Integrated Waveguide Interconnects with Microstrip Transitions José Ernesto Rayas-Sánchez Department of Electronics, Systems and Informatics, ITESO (Instituto Tecnológico y de Estudios Superiores de Occidente), Guadalajara, Mexico
12:00 - 12:30		Paper T2-3 Analysis of Hybrid-Integrated High-Speed Electro-Absorption Modulated Lasers Based on Electromagnetic Simulation Tom Johansen ¹ , Viktor Krozer ¹ , Christophe Kazmierski ² , Christophe Jany ² , and Chenhui Jiang ¹ ¹ Technical University of Denmark, Lyngby, Denmark, ² Alcatel-Thales, Ill-V Lab, Marcoussis, France
12:30 - 13:00		Paper T2-4 A Simple ADS Schematic for Space Mapping Qingsha S. Cheng ¹ , John W. Bandler ¹ , and Slawomir Koziel ² ¹ Department of Electrical and Computer Eng., McMaster University, ON, Canada ² School of Science and Engineering, Reykjavik University, Iceland
13:00 - 14:30	Lunch	
14:30 - 15:00	Session T3	Paper T3-1 Size Reduction and Dispersion/Impedance Engineering with Resonant Type Metamaterial Transmission Lines: Current Status and Future Applications Gerard Sisó, Marta Gil, Francisco Aznar, Jordi Bonache and Ferran Martín GEMMA/CIMITEC, Departament d'Enginyeria Electrònica, Universitat Autònoma de Barcelona, Spain
15:00 - 15:30		Paper T3-2 Miniaturized Metamaterial Filters Using Ring Resonators Isaias Zagoya-Mellado ¹ , Alonso Corona-Chavez ¹ , Ignacio Llamas-Garro ² ¹ National Institute for Astrophysics, Optics and Electronics (INAOE), Puebla, Mexico ² Signal Theory and Communications Department, Technical University of Catalonia, Barcelona, Spain.
15:30 - 16:00		Paper T3-3 SRR- and CSRR-based Metamaterial Transmission Lines: Modeling and Comparison Francisco Aznar, Marta Gil, Gerard Sisó, Jordi Bonache and Ferran Martín GEMMA/CIMITEC, Departament d'Enginyeria Electrònica, Universitat Autònoma de Barcelona, Spain
16:00 - 16:30	Coffee Break	
16:30 - 17:00	Session T4	Paper T4-1 Characterizing a Tune All Bandstop Filter Carles Musoll-Anguiano ¹ , Ignacio Llamas-Garro ¹ , Zabdriel Brito-Brito ¹ , Lluís Pradell-Cara ¹ , and Alonso Corona-Chavez ² ¹ Signal Theory and Communications Department, Technical University of Catalonia, Barcelona, Spain ² National Institute for Astrophysics, Optics and Electronics (INAOE), Puebla, Mexico
17:00 - 17:30		Paper T4-2 A Proposed Uniaxial Anisotropic Dielectric Measurement Technique James C. Rautio Sonnet Software, Inc., North Syracuse, NY, USA
17:30 - 20:00	Reception Cocktail	Cultural Event

Technical Program - Day 1



Friday 20		
Time	Activity	Description
7:30 - 8:30	Registration	
8:30 - 9:00	Paper F1-1	A Piece-wise Model for Nonuniform Multiconductor Transmission Lines ¹ Pablo Moreno, ² Alejandro R. Chávez, and ¹ José L. Naredo ¹ CINVESTAV Unidad Guadalajara, Mexico, ² Universidad Tecnológica de Nayarit, Tepic, Nayarit, Mexico
9:00 - 9:30	Paper F1-2	Neural Network Techniques for High-Speed Electronic Component Modeling Qi-Jun Zhang and Lei Zhang Department of Electronics, Carleton University, Ottawa, ON, Canada
9:30 - 10:00	Paper F1-3	A New Multi-Dimensional RF and Microwave Modeling Algorithm Based on Rational Interpolants and Hybrid Mapping Arash Kashi ¹ , Niladri Roy ¹ , Ege Engin ¹ , and Vijay Devabhaktuni ² ¹ Department of ECE, San Diego State University, San Diego, CA, USA ² EECS Department, University of Toledo, Toledo, OH, USA
10:00 - 10:30	Paper F1-4	Fast Space Mapping with Variable Weight Coefficients for Microwave Device Modeling Slawomir Koziel ¹ , and John W. Bandler ² ¹ School of Science and Engineering, Reykjavik University, Iceland ² Department of Electrical and Computer Eng., McMaster University, ON, Canada
10:30 - 11:00	Coffee Break	
11:00 - 11:30	Paper F2-1	A FDTD Method for Nonuniform Transmission Line Analysis Using Yee's-lattice and Wavelet Expansion Kazunori Watanabe, Toshikazu Sekine, and Yasuhiro Takahashi Gifu University, Gifu, Japan
11:30 - 12:00	Paper F2-2	Full-Wave Analysis and Applications of EBG Waveguides Periodically Loaded with Metal Ridges Stephan Marini ¹ , Ángela Coves ² , Mária Taroncher ³ , Vicente E. Borja ³ , and Benito Gimeno ⁴ ¹ University of Alicante, ² Universidad Miguel Hernández de Elche, ³ Universidad Politécnica de Valencia, ⁴ Universidad de Valencia
12:00 - 12:30	Paper F2-3	Transient Analysis of Power Grid Networks via Waveform Relaxation Techniques Harjot Dhindsa, Arvind Sridhar, Ram Achar, Michel Nakhla and Douglas Paul Carleton University, Ottawa, Ontario, Canada
12:30 - 14:00	Lunch	
14:00 - 14:30	Paper F3-1	A Star Shaped Reconfigurable Patch Antenna J. Costantine ¹ , Y. Tawk ¹ , C.G. Christodoulou ¹ , and S. E. Barbin ^{2,3} ¹ University of New Mexico, Albuquerque, USA, ² Universidade de São Paulo, Brazil ³ Centro de Tecnologia da Informação Renato Archer, Brazil
14:30 - 15:00	Paper F3-2	High Frequency SU-8 Based Transmission Line for 3-D Millimeter-wave Antennas Sae-Won Lee ¹ , Ash M. Parameswaran ¹ , Rodney G. Vaughan ² , Alireza Mahanfar ² ¹ Institute of Micromachine and Microfabrication Research; ² Communications Research Group, Simon Fraser University, British Columbia, Canada
15:00 - 15:30	Paper F3-3	Spherical Near-Field to Far-Field Transformations for the Half-Space Problem with a PEC Boundary J. Rodrigo Camacho-Perez ¹ , and Pablo Moreno-Villalobos ² ¹ Continental Automotive Guadalajara; ² CINVESTAV, Guadalajara
15:30 - 16:00	Coffee Break	
16:00 - 16:30	Paper F4-1	A Modified Model for the Self Inductance of Metal Lines on Si Jesús Huerta-Chua, and Roberto S. Murphy-Arteaga Department of Electronics, National Institute for Research on Astrophysics, Optics and Electronics, Tonantzintla, Puebla, Mexico
16:30 - 17:00	Paper F4-2	Impact of ULK Dielectric Loss on Interconnect Response for 45 nm Node Integrated Circuits S. de Rivaz ¹ , T. Lacrevez ¹ , M. Gallitre ^{1,2} , A. Farcy ² , B. Blampey ¹ , C. Bermond ¹ , and B. Flechet ¹ ¹ Université de Savoie, IMEP-LAHC, Le Bourget du Lac, France ² STMicroelectronics, Crolles, France
17:00 - 17:30	Paper F4-3	A 20 Gb/s 1:4 DEMUX with Near-Rail-to-Rail Logic Swing in 90 nm CMOS Process A. Mineyama ¹ , T. Suzuki ² , H. Ito ¹ , S. Amakawa ¹ , N. Ishihara ¹ , and K. Masu ¹ ¹ Tokyo Institute of Technology, Yokohama, Japan ² Fujitsu Laboratories, Atsugi, Japan
17:30 - 17:40	Closing Remarks	

Technical Program - Day 2



Selected Photos



3 DE FEBRERO DE 2009

JORNADA INTERNACIONAL DE MICROONDAS LLEGA A GUADALAJARA



Integridad de señales e interconexiones de alta velocidad son los dos temas principales que serán abordados en la primera Jornada Internacional de Microondas organizada por el Instituto de Ingenieros en Electricidad y Electrónica (IEEE), que tendrá lugar en la Cámara de Comercio de Guadalajara el próximo 19 y 20 de febrero.

Sin duda, el principal objetivo del evento es promover el conocimiento y las prácticas de ingeniería relacionadas con microondas en América Latina, además de contribuir a la educación y el entrenamiento de estos temas en la región y explorar problemas relevantes para la industria que sean susceptibles a investigarse.

Asimismo, el evento buscará destacar la importancia de la integridad de señales, EMC, diseño basado en EM e interconexiones de alta velocidad en el diseño electróni-

co moderno, así como exponer los proyectos de investigación actuales relacionados con estas tecnologías.

Cabe destacar que los miembros del IEEE y los estudiantes tienen descuentos en su admisión. Para más información visite el sitio www.imws2009-r9.org.

TEMAS TÉCNICOS

Interconexiones de alta velocidad ● Compatibilidad electromagnética ● Técnicas de medición para ligas EMC y de alta frecuencia ● Técnicas CAD para modelado, simulación y optimización basadas en EM ● Efectos de interferencia y acoplamiento ● Integridad de la señal ● Interconexiones avanzadas ● Técnicas digitales de alta velocidad ● Técnicas de pre-énfasis, ecualización y modulación

Media (cont.)

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IMWS
GUADALAJARA
FEB. 19-20

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Guadalajara, Mexico • Feb. 19-20

Visit with representatives from Ansoft at the 2009 [IEEE MTT-S International Microwave Workshop Series](#) in Guadalajara, Mexico.

Ansoft, a Gold sponsor of the event, is happy to contribute to making the event successful. We invite you to stop by our booth and see the most advanced electromagnetics software for signal integrity, RF and microwave design, packaging, and antenna analysis.

Come and see the power of virtual design, prototyping, and testing and how it can improve your engineering process. You can discuss your applications, pick up some literature, or even see a live demonstration.

We look forward to meeting you there!

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Media (cont.)

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Conférences - Matériel informatique - Mexique

Conference-Service.com met à la disposition de ses visiteurs des listes de conférences et réunions dans le domaine scientifique. Ces listes sont publiées pour le bénéfice des personnes qui cherchent une conférence, mais aussi, bien sûr, pour celui de organisateurs. Noter que, malgré tout le soin que nous apportons à la vérification des données entrées dans nos listes, nous ne pouvons accepter de responsabilité en ce qui concerne leur exactitude ou étendue. ***Pensez donc à vérifier les informations présentées avec les organisateurs de la conférence ou de la réunion avant de vous engager à y participer!***

Les organisateurs peuvent [soumettre une réunion ou une conférence](#) pour inclusion dans nos listes, et ceci gratuitement.

IMWS-R9 2009 — International Microwave Workshop Series on Signal Integrity and High-Speed Interconnects

19 Fév 2009 → 20 Fév 2009; Guadalajara, Mexique

Page web: <http://www.imws2009-R9.org/>

Sujets apparentés: [Électronique](#)

Media (cont.)



2009 IEEE MTT-S INTERNATIONAL MICROWAVE WORKSHOP SERIES (IMWS 2009) ON SIGNAL INTEGRITY AND HIGH-SPEED INTERCONNECTS

This event will be held February 19-20, 2009, in Guadalajara , Mexico (Paper submission deadline: Oct 6, 2008) <http://www.imws2009-r9.org/>

Araceli García Gómez ---IEEE Sección Guadalajara --
-Presidenta 2007-2008



Full Technical Report Next



ITESO
Universidad Jesuita
de Guadalajara

Instituto Tecnológico y de Estudios Superiores de Occidente
Departamento de Electrónica, Sistemas e Informática

Final Report on the
First IEEE MTT-S International Microwave Workshop Series in Region 9
(IMWS2009-R9), on Signal Integrity and High-Speed Interconnects

Dr. José Ernesto Rayas-Sánchez

June 6, 2009



Final Report on the

First IEEE MTT-S International Microwave Workshop Series in Region 9 (IMWS2009-R9), on Signal Integrity and High-Speed Interconnects

Dr. José Ernesto Rayas-Sánchez

June 6, 2009

0. Reseña en Español

Los días 19 y 20 de febrero del 2009 se llevó a cabo la Primera Jornada Internacional de Microondas del IEEE en Latinoamérica, sobre Integridad de Señales e Interconexiones de Alta Velocidad (*First IEEE MTT-S International Microwave Workshop Series in Region 9, IMWS2009-R9, on Signal Integrity and High-Speed Interconnects*). La jornada tuvo lugar en la Cámara de Comercio de Guadalajara, y fue organizada localmente por el ITESO en colaboración con el IEEE Sección Guadalajara.

Esta serie de jornadas surgieron como una iniciativa del Comité Transnacional de la Sociedad Técnica del IEEE en Teoría y Técnicas de las Microondas (*Microwave Theory and Techniques Society, MTT-S*), con las cuales se busca extender los talleres que anualmente se realizan en el congreso internacional más prestigiado del mundo en esta temática (*IEEE International Microwave Symposium*), así como fomentar la colaboración científica internacional con países de economías emergentes. Para esta edición, la primera que se realiza en Latinoamérica, se recibieron un total de 42 artículos científicos provenientes de los siguientes 15 países: Brasil, Canadá, Colombia, Dinamarca, Egipto, España, Estados Unidos, Francia, Islandia, India, Irán, Japón, México, Pakistán, y Taiwán. Después de un riguroso proceso de evaluación, conducido por un comité de expertos reconocidos internacionalmente, se logró ensamblar un excelente programa técnico con un total de 25 trabajos de clase mundial, los cuales fueron presentados durante evento. Los trabajos aceptados ya han sido publicados en línea a través del sistema *IEEE Xplore*, y la memoria técnica del evento cuenta con ISBN y estará catalogada en la biblioteca del congreso de los Estados Unidos.

La temática de la jornada fue altamente especializada, e incluyó los siguientes tópicos: interconexiones de alta velocidad a nivel sistema, PCB, paquete, y circuito integrado; compatibilidad electromagnética; técnicas de medición para interconexiones de alta frecuencia; métodos de CAD para el modelado, diseño y optimización basado en electromagnetismo; efectos de acoplamiento e interferencia; integridad de señales; guías de onda embebidas en substratos; estructuras basadas en metamateriales; modelado basado en redes neuronales artificiales; circuitos integrados de muy alta frecuencia; y diseño de antenas impresas. Los detalles de la jornada pueden consultarse en <http://www.imws2009-r9.org/>.



La jornada contó con la participación de más cien asistentes, incluyendo estudiantes de licenciatura y posgrado, profesores e investigadores, ingenieros practicantes, ingenieros de investigación y desarrollo industrial, y empresarios del sector de la industria electrónica. Resultó además un espacio privilegiado de convivencia, en el que se tuvo la oportunidad de asistir a un excelente evento cultural durante la noche del primer día de trabajo.

Numerosos mensajes de felicitación se han recibido en torno a la realización de este importante evento. La jornada resultó todo un éxito gracias a la participación de un gran número de colaboradores, tanto de México como de otros países, incluyendo a un gran número de profesores del Departamento de Electrónica, Sistemas e Informática (DESI) del ITESO. Mención especial merece el excelente trabajo de su comité organizacional, en el que participaron de manera central los siguientes académicos del DESI: Sara Ortiz, Araceli García, Oscar Fernández, Víctor Zaldívar, Jorge Pardiñas y Ernesto Rayas.

1. Summary

During February 19 and 20, 2009, it took place in Guadalajara, Mexico, the First IEEE MTT-S International Microwave Workshop Series in Region 9 (IMWS2009-R9), on Signal Integrity and High-Speed Interconnects.

This workshop series emerged from a recent initiative of the IEEE MTT-S Transnational Committee, to complement the existing workshops of the prestigious MTT-S International Microwave Symposia (IMS). The purpose of these new workshop series is to boost and promote MTT-S technical and educational activities as well as MTT-S international exchanges and collaborations. It is envisioned that several workshops covering different topics of MTT-S interest will be developed each year at a worldwide scale, spreading in various continents and countries.

The pertinence of this MTT-S initiative was verified by the large amount of technical manuscripts received for this first edition of the workshop series: a total of 42 papers from 15 different countries, namely Brazil, Canada, Colombia, Denmark, Egypt, France, Iceland, India, Iran, Japan, Mexico, Pakistan, Spain, Taiwan, and USA. After a rigorous evaluation process, an excellent 2-day technical program with 25 world-class papers was assembled, covering a wide-range of topics on RF and microwave circuit design, simulation, and characterization, with emphasis on signal integrity and high-speed interconnects at the PCB, package and IC levels. The complete technical program can be seen at <http://www.imws2009-r9.org/>. All the accepted and presented papers can now be accessed online in the IEEEExplore. The Workshop Proceedings has an ISBN number, and it is cataloged in the Library of Congress.

More than one hundred attendees registered to the workshop, including graduate and undergraduate students from Mexican universities, national professors, industrial practitioners from local companies, as well as internationally recognized academic and industrial researchers and



innovators. By the end of the first day of activities, workshop attendees enjoyed a first-class show of Mexican folkloric music and dances.

2. Scope and Objectives

The First IEEE MTT-S International Microwave Workshop Series in Region 9 (IMWS2009-R9), held during February 19-20, 2009, in Guadalajara, Mexico, has the following objectives:

- a) To promote state-of-the-art microwave knowledge and engineering practices in Latin America
- b) To highlight the importance of signal integrity, EMC, EM-based design and high-speed interconnects in modern electronics design
- c) To expose current research projects related to signal integrity, EMC, and high-speed interconnects (system, PCB, package and IC levels)
- d) To contribute to the education and training on these topics in Latin America
- e) To explore some industrially relevant problems on these topics susceptible of research.

The workshop technical content includes a wide-range of topics on RF and microwave circuit modeling, design, simulation, and characterization, with emphasis on signal integrity and high-speed interconnects, including:

- a) High-speed interconnect design and characterization, at the system, PCB, package and IC levels
- b) Electromagnetic compatibility issues
- c) Measurement and characterization techniques for EMC and high frequency links
- d) CAD techniques for EM-based modeling, simulation and optimization
- e) Crosstalk and coupling effects
- f) Signal integrity issues
- g) State-of-the-art interconnects, including substrate integrated waveguides (SIW), and electromagnetic bandgap (EBG) structures
- h) Metamaterial-based transmission lines and microwave components
- i) High-speed digital techniques
- j) Pre-emphasis, equalization and modulation techniques
- k) Printed antenna design, and antennas characterization



- l) Other relevant microwave engineering topics.

3. Organization Committee

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José E. Rayas-Sánchez (TPC Co-Chair), ITESO, Mexico

6. Workshop Website

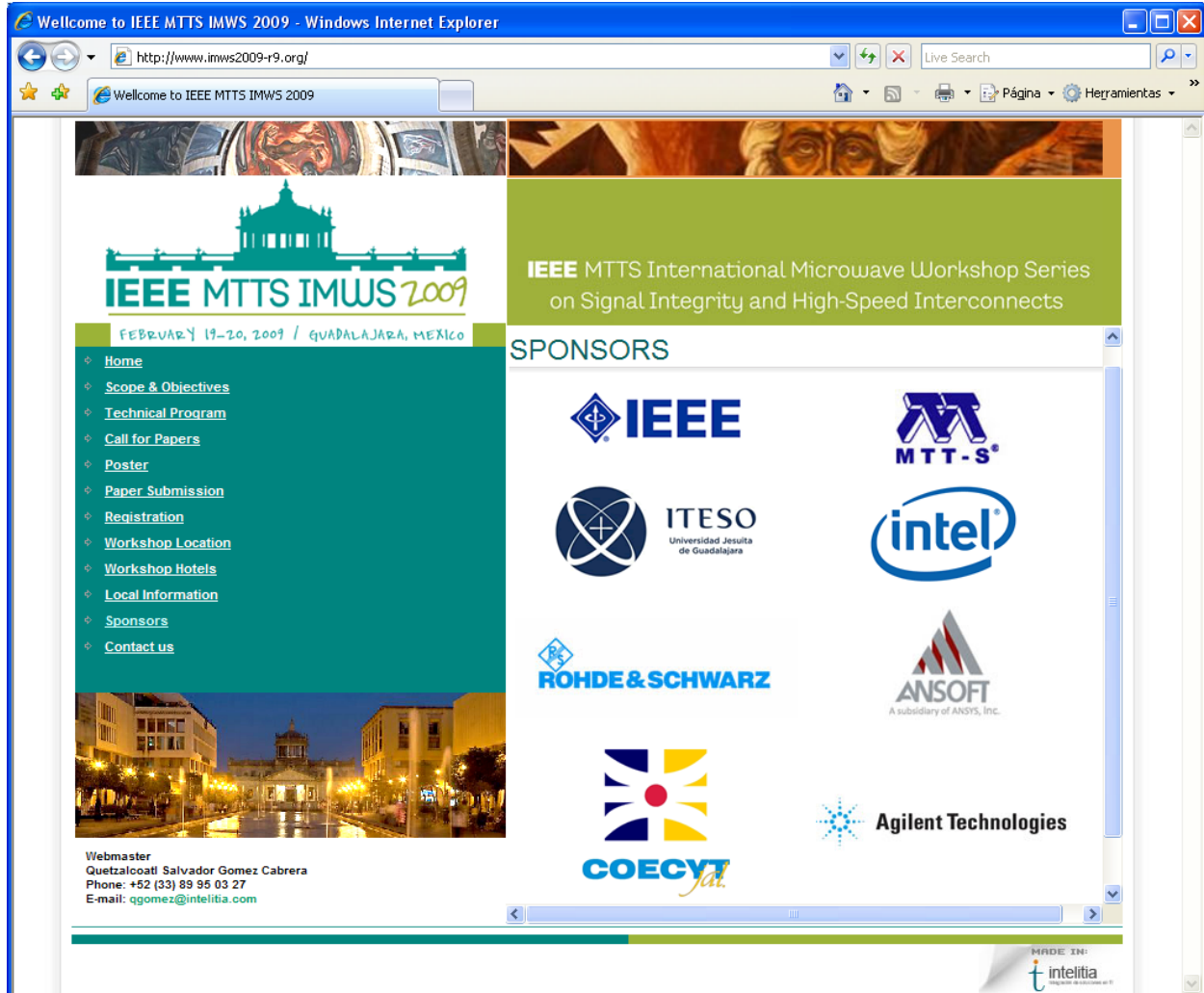
A dedicated website was developed for the workshop, with the following address:

<http://www.imws2009-r9.org/>

The main page for the website is:



Website page for sponsors:





7. Call for Papers



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The IEEE MTT-S Administrative Committee (AdCom) has recently passed a resolution of its Transnational Committee to create and develop the IEEE MTT-S International Workshop Series (IMWS), which will complement the existing workshops of the MTT-S International Microwave Symposia. The purpose of this new platform is to boost and promote MTT-S technical and educational activities as well as MTT-S international exchanges and collaborations. Several workshops covering different topics of MTT-S interest will be developed each year at a worldwide scale, spreading in various continents and countries.

The Technical Program Committee of the 2009 IEEE MTT-S International Microwave Workshop Series in Region 9 (IMWS2009-R9) wishes to invite original contributions to this event, which will be held during February 19-20, 2009, in Guadalajara, Mexico.

The workshop includes, but is not limited to, the following topics:

- ✚ High-speed interconnects (system, PCB, package and IC levels)
- ✚ Electromagnetic compatibility (design, testing and standards)
- ✚ Measurement techniques for EMC and high frequency links
- ✚ CAD techniques for EM-based modeling, simulation and optimization
- ✚ Crosstalk and coupling effects
- ✚ Signal integrity
- ✚ State-of-the-art interconnects, including SIW, EBG and metamaterial structures
- ✚ High-speed digital techniques
- ✚ Pre-emphasis, equalization and modulation techniques
- ✚ Other relevant microwave engineering topics

Papers submission: Manuscripts must be submitted in PDF format for consideration as part of the technical program (no hard copies accepted). Papers must conform to the IMWS-2009 template (4-page length). Accepted and presented papers will be published on-line in IEEE *Xplore*. Please visit www.imws2009-r9.org for further details.

Deadlines (new)

Paper submission for review: November 3, 2008

Notification of acceptance: November 17, 2008

Final paper submission: November 24, 2008

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8. Workshop Promotional Poster

IEEE MTT-S IMWS 2009
IEEE MTT-S International Microwave Workshop Series
on Signal Integrity and High-Speed Interconnects





FEBRUARY 19-20, 2009
GUADALAJARA, MEXICO

THE WORKSHOP TECHNICAL CONTENTS INCLUDES,
BUT IS NOT LIMITED TO, THE FOLLOWING TOPICS:

- ▶ High-speed interconnects (system, PCB, package and IC levels)
- ▶ Electromagnetic compatibility (design, testing and standards)
- ▶ Measurement techniques for EMC and high frequency links
- ▶ CAD techniques for EM-based modeling, simulation and optimization
- ▶ Crosstalk and coupling effects
- ▶ Signal integrity
- ▶ State-of-the-art interconnects, including SIW, EBG and metamaterial structures
- ▶ High-speed digital techniques
- ▶ Pre-emphasis, equalization and modulation techniques
- ▶ Other relevant microwave engineering topics

Paper submission for review: October 6, 2008
Notification of acceptance: October 27, 2008
Final paper submission: November 14, 2008

Web site: www.imws2009-rg.org



9. Technical Program

Thursday 19		
Time	Activity	Description
7:00 - 8:30	Registration	
8:30 - 9:00	Opening Remarks	Inaugural Keynotes Ke Wu, IEEE MTT-S Transnational Committee Chair Jesús Palomino, General Manager of Intel Guadalajara Design Center
9:00 - 9:30	Session T1	QFN-based Millimeter Wave Packaging to 80GHz Eric A. Sanjuan and Sean S. Cahill BridgeWave Communications, Inc., Santa Clara, CA, USA
9:30 - 10:00		FDTD Modeling Applications in Ultrahigh-Speed Interconnects and Electromagnetic Compatibility of Complex Packages Jamesina J. Simpson University of New Mexico, Albuquerque, NM, USA
10:00 - 10:30		Impact of the Configuration of Ground Vias on the Performance of Vertical Transitions Used in Electronic Packages Svetlana C. Sejas-García ^{1,2} , Gerardo Romo ² , Reydezel Torres-Torres ¹ ¹ INAOE (Instituto Nacional de Astrofísica, Óptica y Electrónica), Puebla, Mexico, ² Intel Mexico Research Center, Tlaquepaque, Mexico
10:30 - 11:00	Coffee Break	
11:00 - 11:30	Session T2	Substrate Integrated Waveguide (SIW) Filter: Design Methodology and Performance Study G. Romo ¹ , A.Ciccomancini Scogna ² ¹ Intel Tecnología de Mexico, Guadalajara, Mexico ² CST, Framingham, MA, USA
11:30 - 12:00		An Improved EM-Based Design Procedure for Single-Layer Substrate Integrated Waveguide Interconnects with Microstrip Transitions José Ernesto Rayas-Sánchez Department of Electronics, Systems and Informatics, ITESO (Instituto Tecnológico y de Estudios Superiores de Occidente), Guadalajara, Mexico
12:00 - 12:30		Analysis of Hybrid-Integrated High-Speed Electro-Absorption Modulated Lasers Based on Electromagnetic Simulation Tom Johansen ¹ , Viktor Krozer ¹ , Christophe Kazmierski ² , Christophe Jany ² , and Chenhui Jiang ¹ ¹ Technical University of Denmark, Lyngby, Denmark, ² Alcatel-Thales, III-V Lab, Marcoussis, France
12:30 - 13:00		A Simple ADS Schematic for Space Mapping Qingsha S. Cheng ¹ , John W. Bandler ¹ , and Slawomir Koziel ² ¹ Department of Electrical and Computer Eng., McMaster University, ON, Canada ² School of Science and Engineering, Reykjavik University, Iceland
13:00 - 14:30	Lunch	
14:30 - 15:00	Session T3	Size Reduction and Dispersion/Impedance Engineering with Resonant Type Metamaterial Transmission Lines: Current Status and Future Applications Gerard Sisó, Marta Gil, Francisco Aznar, Jordi Bonache and Ferran Martín GEMMA/CIMITEC, Departament d'Enginyeria Electrònica, Universitat Autònoma de Barcelona, Spain
15:00 - 15:30		Miniaturized Metamaterial Filters Using Ring Resonators Isaias Zagoya-Mellado ¹ , Alonso Corona-Chavez ¹ , Ignacio Llamas-Garro ² ¹ National Institute for Astrophysics, Optics and Electronics (INAOE), Puebla, Mexico ² Signal Theory and Communications Department, Technical University of Catalonia, Barcelona, Spain.
15:30 - 16:00		SRR- and CSRR-based Metamaterial Transmission Lines: Modeling and Comparison Francisco Aznar, Marta Gil, Gerard Sisó, Jordi Bonache and Ferran Martín GEMMA/CIMITEC, Departament d'Enginyeria Electrònica, Universitat Autònoma de Barcelona, Spain
16:00 - 16:30	Coffee Break	
16:30 - 17:00	Session T4	Characterizing a Tune All Bandstop Filter Carles Musoll-Anguiano ¹ , Ignacio Llamas-Garro ¹ , Zabdiel Brito-Brito ¹ , Lluís Pradell-Cara ¹ , and Alonso Corona-Chavez ² ¹ Signal Theory and Communications Department, Technical University of Catalonia, Barcelona, Spain ² National Institute for Astrophysics, Optics and Electronics (INAOE), Puebla, Mexico
17:00 - 17:30		A Proposed Uniaxial Anisotropic Dielectric Measurement Technique James C. Rautio Sonnet Software, Inc., North Syracuse, NY, USA
17:30 - 20:00	Reception Cocktail	Cultural Event



Friday 20		
Time	Activity	Description
7:30 - 8:30	Registration	
8:30 - 9:00	Paper F1-1	A Piece-wise Model for Nonuniform Multiconductor Transmission Lines ¹ Pablo Moreno, ² Alejandro R. Chávez, and ¹ José L. Naredo ¹ CINVESTAV Unidad Guadalajara, Mexico, ² Universidad Tecnológica de Nayarit, Tepic, Nayarit, Mexico
9:00 - 9:30	Paper F1-2	Neural Network Techniques for High-Speed Electronic Component Modeling Qi-Jun Zhang and Lei Zhang Department of Electronics, Carleton University, Ottawa, ON, Canada
9:30 - 10:00	Session F1 Paper F1-3	A New Multi-Dimensional RF and Microwave Modeling Algorithm Based on Rational Interpolants and Hybrid Mapping Arash Kashi ¹ , Niladri Roy ¹ , Ege Engin ¹ , and Vijay Devabhaktuni ² ¹ Department of ECE, San Diego State University, San Diego, CA, USA ² EECS Department, University of Toledo, Toledo, OH, USA
10:00 - 10:30	Paper F1-4	Fast Space Mapping with Variable Weight Coefficients for Microwave Device Modeling Slawomir Koziel ¹ , and John W. Bandler ² ¹ School of Science and Engineering, Reykjavik University, Iceland ² Department of Electrical and Computer Eng., McMaster University, ON, Canada
10:30 - 11:00	Coffee Break	
11:00 - 11:30	Paper F2-1	A FDTD Method for Nonuniform Transmission Line Analysis Using Yee's-lattice and Wavelet Expansion Kazunori Watanabe, Toshikazu Sekine, and Yasuhiro Takahashi Gifu University, Gifu, Japan
11:30 - 12:00	Session F2 Paper F2-2	Full-Wave Analysis and Applications of EBG Waveguides Periodically Loaded with Metal Ridges Stephan Marini ¹ , Ángela Covés ² , Máriam Taroncher ³ , Vicente E. Boria ³ , and Benito Gimeno ⁴ ¹ University of Alicante, ² Universidad Miguel Hernández de Elche, ³ Universidad Politécnica de Valencia, ⁴ Universidad de Valencia
12:00 - 12:30	Paper F2-3	Transient Analysis of Power Grid Networks via Waveform Relaxation Techniques Harjot Dhindsa, Arvind Sridhar, Ram Achar, Michel Nakhla and Douglas Paul Carleton University, Ottawa, Ontario, Canada
12:30 - 14:00	Lunch	
14:00 - 14:30	Paper F3-1	A Star Shaped Reconfigurable Patch Antenna J. Costantine ¹ , Y. Tawk ¹ , C.G. Christodoulou ¹ , and S. E. Barbin ^{2,3} ¹ University of New Mexico, Albuquerque, USA, ² Universidade de São Paulo, Brazil ³ Centro de Tecnologia da Informação Renato Archer, Brazil
14:30 - 15:00	Session F3 Paper F3-2	High Frequency SU-8 Based Transmission Line for 3-D Millimeter-wave Antennas Sae-Won Lee ¹ , Ash M. Parameswaran ¹ , Rodney G. Vaughan ² , Alireza Mahanfar ² ¹ Institute of Micromachine and Microfabrication Research; ² Communications Research Group, Simon Fraser University, British Columbia, Canada
15:00 - 15:30	Paper F3-3	Spherical Near-Field to Far-Field Transformations for the Half-Space Problem with a PEC Boundary J. Rodrigo Camacho-Perez ¹ , and Pablo Moreno-Villalobos ² ¹ Continental Automotive Guadalajara; ² CINVESTAV, Guadalajara
15:30 - 16:00	Coffee Break	
16:00 - 16:30	Paper F4-1	A Modified Model for the Self Inductance of Metal Lines on Si Jesús Huerta-Chua, and Roberto S. Murphy-Arteaga Department of Electronics, National Institute for Research on Astrophysics, Optics and Electronics, Tonantzintla, Puebla, Mexico
16:30 - 17:00	Session F4 Paper F4-2	Impact of ULK Dielectric Loss on Interconnect Response for 45 nm Node Integrated Circuits S. de Rivaz ¹ , T. Lacrevez ¹ , M. Gallitre ^{1,2} , A. Farcy ² , B. Blampey ¹ , C. Bermond ¹ , and B. Flechet ¹ ¹ Université de Savoie, IMEP-LAHC, Le Bourget du Lac, France ² STMicroelectronics, Crolles, France
17:00 - 17:30	Paper F4-3	A 20 Gb/s 1:4 DEMUX with Near-Rail-to-Rail Logic Swing in 90 nm CMOS Process A. Mineyama ¹ , T. Suzuki ² , H. Ito ¹ , S. Amakawa ¹ , N. Ishihara ¹ , and K. Masu ¹ ¹ Tokyo Institute of Technology, Yokohama, Japan ² Fujitsu Laboratories, Atsugi, Japan
17:30 - 17:40	Closing Remarks	



9. Workshop Proceedings

A formal workshop proceedings book was edited and printed. The book has an ISBN number (978-1-4244-2743-7), as well as a Library of Congress reference (2008906389). The main first pages of the workshop proceedings are reproduced below.

Proceedings of the 2009 IEEE MTT-S International Microwave Workshop Series on Signal Integrity and High-Speed Interconnects

IMWS2009-R9

February 19-20, 2009 Guadalajara, Mexico

Edited by

José E. Rayas-Sánchez
Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO)
Guadalajara, Mexico

Víctor H. Zaldívar
Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO)
Guadalajara, Mexico



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Foreword

On behalf of the International Advisory Committee, as well as the Organization and Technical Program Committees, we would like to warmly welcome all the participants to the First IEEE MTT-S International Microwave Workshop Series in Region 9 (IMWS2009-R9), on Signal Integrity and High-Speed Interconnects.

This workshop series emerged from a recent initiative of the IEEE MTT-S Transnational Committee, to complement the existing workshops of the prestigious MTT-S International Microwave Symposia (IMS). The purpose of these new workshop series is to boost and promote MTT-S technical and educational activities as well as MTT-S international exchanges and collaborations. It is envisioned that several workshops covering different topics of MTT-S interest will be developed each year at a worldwide scale, spreading in various continents and countries.

The first edition of this workshop in Latin America will be proudly hosted by the city of Guadalajara, Jalisco, Mexico. The pertinence of this MTT-S initiative has been verified by the large amount of technical manuscripts we received for this first edition of the workshop series. We received a total of 42 papers from 15 different countries, namely Brazil, Canada, Colombia, Denmark, Egypt, France, Iceland, India, Iran, Japan, Mexico, Pakistan, Spain, Taiwan, and USA. After a rigorous evaluation process conducted by our Technical Program Committee members, we assembled an excellent 2-day technical program with 25 very interesting papers, covering a wide-range of topics on RF and microwave circuit design, simulation, and characterization, with emphasis on signal integrity and high-speed interconnects at the PCB, package and IC levels.

We hope you will benefit from the exciting IMWS2009-R9 technical program, as well as from the professional networking with other colleagues. By the end of the workshop's first day, you will have an opportunity to enjoy some of the most representative cultural expressions of Mexico. We also wish you have an opportunity to enjoy Guadalajara and its surroundings, including Tlaquepaque, Chapala Lake, Tonalá, and Tequila, as well as the beach resort Puerto Vallarta.

Dr. José Ernesto Rayas-Sánchez
ITESO, Mexico
General Workshop Chair

Dr. Ke Wu
Ecole Polytechnique du Montreal, Canada
IEEE MTT-S Transnational Committee Chair

2009 IEEE MTT-S International Microwave Workshop Series in Region 9

<http://www.imws2009-r9.org/>



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² STMicroelectronics, Crolles, France	
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A. Mineyama ¹ , T. Suzuki ² , H. Ito ¹ , S. Amakawa ¹ , N. Ishihara ¹ , and K. Masu ¹	
¹ Tokyo Institute of Technology, Yokohama, Japan	
² Fujitsu Laboratories, Atsugi, Japan	
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10. Workshop CD

We produced a workshop CD with all the technical papers, as well as the technical program, author index, and institutions index. The CD has the following image:



11. Attendees

We had the participation of 102 attendees, with the following distribution:

Attendees from Mexico: 75

Attendees from abroad: 27

Professors: 35

Students: 32

Engineers/Researchers from Industry: 35



12. Participating Institutions

- 1) Alcatel-Thales, III-V Lab, Marcoussis, France
- 2) BridgeWave Communications, Inc., Santa Clara, CA, USA
- 3) Carleton University, Ottawa, Ontario, Canada
- 4) Centro de Tecnologia da Informação Renato Archer, Brazil
- 5) CINVESTAV Unidad Guadalajara, Mexico
- 6) Communications Research Group, Simon Fraser University, British Columbia, Canada
- 7) Continental Automotive Guadalajara
- 8) CST, Framingham, MA, USA
- 9) Department of ECE, San Diego State University, San Diego, CA, USA
- 10) Department of Electrical and Computer Eng., McMaster University, ON, Canada
- 11) Department of Electronics, Carleton University, Ottawa, ON, Canada
- 12) EECS Department, University of Toledo, Toledo, OH, USA
- 13) Fujitsu Laboratories, Atsugi, Japan
- 14) GEMMA/CIMITEC, Departament d'Enginyeria Electrònica, Universitat Autònoma de
- 15) Barcelona, Spain
- 16) Gifu University, Gifu, Japan
- 17) INAOE (Instituto Nacional de Astrofísica, Óptica y Electrónica), Puebla, Mexico
- 18) Institute of Micromachine and Microfabrication Research
- 19) Intel Mexico Research Center, Tlaquepaque, Mexico
- 20) Intel Tecnología de Mexico, Guadalajara, Mexico
- 21) ITESO (Instituto Tecnológico y de Estudios Superiores de Occidente), Guadalajara, Mexico
- 22) National Institute for Astrophysics, Optics and Electronics (INAOE), Puebla, Mexico
- 23) School of Science and Engineering, Reykjavik University, Iceland
- 24) Signal Theory and Communications Department, Technical University of Catalonia,
- 25) Barcelona, Spain
- 26) Signal Theory and Communications Department, Technical University of Catalonia,
- 27) Barcelona, Spain
- 28) Sonnet Software, Inc., North Syracuse, NY, USA
- 29) STMicroelectronics, Crolles, France
- 30) Technical University of Denmark, Lyngby, Denmark
- 31) Tokyo Institute of Technology, Yokohama, Japan
- 32) Universidad de Valencia
- 33) Universidad Miguel Hernández de Elche
- 34) Universidad Politécnica de Valencia
- 35) Universidad Tecnológica de Nayarit, Tepic, Nayarit, Mexico
- 36) Universidade de São Paulo, Brazil
- 37) Université de Savoie, IMEP-LAHC, Le Bourget du Lac, France
- 38) University of Alicante
- 39) University of New Mexico, Albuquerque, NM, USA



13. Media and Publicity

Our event was announced through:

- a) IEEE Guadalajara Section Newsletter (through email).
- b) IEEE Mexico Council in all the nine IEEE Mexico Sections (e-mail messages and hardcopy posters).
- c) IEEE Region 9 Virtual Community.
- d) IEEE MTT-S Newsletter.
- e) IEEE Microwave Magazine.
- f) *Electrónicos on Line* website (<http://www.electronicosonline.com/>).
- g) *Services aux conférences Mandl* (*conférences scientifiques et techniques*) (email)
- h) CANIETI website (<http://www.canieti.org/>).
- i) Hardcopy posters sent to several national universities and local companies.
- j) Hardcopy posters distributed during IEEE MTT-S International AdCom Meetings.

14. Some Photos





