2010 INTERNATIONAL MICROWAVE SYMPOSIUM

IEEE MTT-S • MAY 23-28, 2010 • ANAHEIM, CALIFORNIA

THE GOLDEN STATE OF MICROWAVES

# IMS2010 FINAL CALL FOR PAPERS


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**The IEEE Microwave Theory & Techniques Society (MTT-S) International Microwave Symposium for 2010 (IMS2010) will be held in Anaheim, California, as the centerpiece of Microwave Week 2010, scheduled from Sunday, May 23 through Friday, May 28, 2010.** IMS2010 offers technical paper sessions, workshops/tutorials, poster sessions (called open forum), applications seminars (called MicroApps), plenary and panel sessions, industrial exhibits, historical exhibits, and a host of other activities including a guest program for the spouses and accompanying family members. The Microwave Week comprises still other activities, including the RFIC Symposium, and the ARFTG conference collocated with IMS2010.

**REQUEST** Authors are invited to submit technical papers describing original research, development, and application work on radio-frequency and microwave theory and techniques, in the various areas within this field; on the following page is a list of areas that is only suggestive and not intended to exclude other areas.

**INVITATION TO PAPERS IN EMERGING TECHNICAL AREAS** The Technical Program Committee of IMS2010 would like to emphasize in the strongest possible terms that the scope of the 2010 International Microwave Symposium is not limited to the 31 topical areas listed below in this Call for Papers. The Committee is taking deliberate steps to broaden the horizon of the Symposium by including technical areas that, although within the field of interest of IEEE MTT-Society, have not historically had, or do not currently have, adequate representation in the program of the symposium. We enthusiastically invite submission of papers that report results of progress in the state-of-the-art of technological areas that are outside the scope of the listed topics, or are new to the Symposium. Illustrative examples of these areas include:

- RF components for very low-cost, high-volume manufacturing in applications like RFID
- Terahertz technology and chips for bio-assays
- High-power components and techniques for heating and industrial processing
- DSP techniques for enhancing specifications of RF circuits and RF techniques for enhancing specifications of DSP hardware

Because these areas will include newly emerging technologies or breakthroughs, an a-priori list of these areas can not be anticipated.

All papers submitted to IMS must be reviewed by one of the subcommittees of the IMS Technical Paper Review Committee (TPRC) assembled for each respective area (including those for the 31 areas listed below). In order to accommodate the review of submitted papers in new areas, additional subcommittees of the TPRC will be created essentially in real time, as the need for them becomes apparent from the received paper submissions. The need for new TPRC Subcommittees may arise either when the submitted papers lie outside the domain of any existing TPRC subcommittee, or there is a sizable cluster of papers in a subset of the domain of a subcommittee that justifies its own TPRC subcommittee, or to nurture a budding area within the Symposium.

Authors who believe their papers fall in any of those categories are asked to select “Emerging Technologies” as the topic during the paper submission.

**PAPER SUBMISSION INSTRUCTIONS** Technical papers to be considered for presentation at IMS2010 must be submitted electronically, in pdf format, via the symposium webportal, www.ims2010.org. This website provides complete information on submission procedure, registration, and related items. Paper or printed copies of submissions cannot be accepted. Symposium proceedings are published as a CD ROM by IEEE, and posted in their digital library. Authors of high-quality papers will be invited to submit an extended version of their paper for the Special IMS2010 issue of IEEE Trans. Microwave Theory & Techniques.

**PROPOSAL INVITATION** The Technical Program Committee (TPC) of the Symposium also invites proposals for:

- Workshops (ranging from expert-level to tutorials and short courses), and
- Special Sessions (including focused, honorary, and panel/rump sessions).

Details regarding the types of workshops sought, information requested along with the proposal, and the proposal evaluation criteria, are available on the Symposium website www.ims2010.org. Special sessions on topics that are currently being intensely pursued, contentious, or relevant to the theme of the Symposium or to the microwave community in Southern California, may be proposed for consideration by the Technical Program Committee of the Symposium. For full consideration, all proposals should be received by the posted dates.

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# TECHNICAL AREAS

## Microwave Field and Circuit Techniques

**1. Field Analysis and Guided Waves**

Novel guiding structures, new physical phenomena in transmission lines and other wave guiding structures and new analytical methods for solving guided-wave problems.

**2. Frequency-Domain EM Analysis Techniques**

Frequency-Domain methods for numerical solution of electromagnetic problems, including field interactions with devices, circuits and with other phsyical processes.

**3. Time-Domain EM Analysis Techniques**

Time-Domain methods for numerical modeling of high frequency electronics, including modeling based on physical behaviors (electromagnetic, semiconductor, thermal, mechanical).

**4. CAD Algorithms and Techniques**

Circuit analysis methods, optimization methods, statistical analysis.

**5. Linear Device Modeling**

Linear models of active and passive devices, models.

**6. Nonlinear Device Modeling**

Large-signal device models, characterization, parameter extraction, validation.

**7. Nonlinear Circuit and System Simulation**

Harmonic balance, simulation techniques, distortion and spurious analysis, system simulations and behavioral modeling.

## Passive RF and Microwave Components

**8. Transmission Line Elements**

Planar, non-planar and micro machined transmission lines and waveguides, including periodic and metamaterial-type structures, discontinuities, junctions and transitions.

**9. Passive Circuit Elements**

Couplers, dividers/combiners, hybrids, resonators, lumped element approaches to circuit design.

**10. Planar Passive Filters and Multiplexers**

Innovative synthesis and analysis of planar filters and multiplexers, including planar superconducting structures.

**11. Non-planar Passive Filters and Multiplexers**

Waveguide, dielectric resonator and non-planar super conducting structures.

**12. Active, Tunable, and Integrated Filters**

Integrated filters (on Si, LTCC, LCP, MCM-D, GaAs,...) active, tunable and reconfigurable filters. Filters based on metamaterials, DGS, EBG and other structures.

**13. Ferroelectric, Ferrite, and Acoustic Wave Components**

Ferroelectric devices, bulk and thin film ferrite components, surface and bulk acoustic wave devices including FBAR devices.

**14. MEMS Components and Technologies**

RF micro electromechanical and micro machined components and subsystems: switches, resonators, tunable passive filters, phase shifters, reconfigurable filters and antennas. Modeling, packaging, reliability, novel materials and assembly processes.

## Active RF and Microwave Components

**15. Semiconductor Devices and Monolithic ICs**

Multifunction and monolithic integrated components: RF, microwave and millimeter-wave MMICs on GaAs, SiGe ICs and other technologies. MMIC manufacturing, reliability, failure analysis, yield and cost.

**16. Signal Generation**

CW and pulsed oscillators, VCOs, DROs, YTOs, PLOs and frequency synthesizers. Applications of new devices and resonators, noise in oscillators, DDS techniques.

**17. Frequency Conversion and Control**

Electronic switches, phase shifters, limiters, mixers, frequency multipliers and frequency dividers.

**18. HF/VHF/UHF Technologies and Applications**

Technology for HF, VHF and UHF including passive and active components, lumped and distributed elements, transmitters and receivers.

**19. Power Amplifier Devices and Circuits**

Design and performance of discrete and IC power amplifiers for RF, microwave and millimeter-wave signals, wide bandgap devices.

**20. High-Power Amplifiers**

High-power amplifier design and characterization, linearization techniques, power combining techniques, vacuum electronics.

**21. Low-Noise Components and Receivers**

Low-noise amplifiers, detectors, devices, receivers, radiometers, models and characterization methods for low-noise circuits and components.

**22. Millimeter-Wave and THz Components and Technologies**

Millimeter-Wave components, technologies and applications above 30 GHz, sub millimeter wave/terahertz devices, instruments and applications including THz imaging.

## RF and Microwave Systems and Applications

**23. Microwave Photonics**

Microwave/optical interactions and device technology. Wireless over fiber, free-space optical technology, broadband cable applications of photonics, optical transmissions effects.

**24. Signal Processing Circuits at GHz speeds**

High-speed mixed-signal components, modules and subsystems: ADC, DAC and DDS; backplanes, signal integrity and equalization, electrical/optical interfaces and transmission; MIMO; SDR and coherent systems.

**25. Packaging, Interconnects, MCMs and Integration**

Dielectrics and substrates, component and subsystem packaging, assembly methods, hybrid integration, interconnects and multi-chip modules (MCMs), hybrid manufacturing, yield and cost.

**26. Instrumentation and Measurement Techniques**

Network, time-domain and spectral measurements, field mapping, error correction and estimation, materials measurements.

**27. Biological Effects and Medical Applications**

Biomedical applications of microwaves, applications in biology, microwave fields and interactions in tissues.

**28. RF Arrays as Antennas and Power Combiners**

Smart antennas for wireless applications, spatial power combining, phased arrays, retrodirective systems, T/R modules, multi-beam scanning, active integrated antennas.

**29. Radar and Broadband Communication Systems**

Broadband and MMW communications systems for terrestrial, vehicular, satellite and indoor applications. Radar systems and subsystems UWB systems and subsystems.

**30. Wireless and Cellular Communication Systems**

Wireless system and transceiver architectures for 3G/4G for cellular system, WLAN, UWB, WiMax and Cognitive Radio Systems.

**31. Sensors and Sensor Systems**

RFID, IVHS, wireless micro sensors, nondestructive testing, imaging and remote sensing.

## Emerging Technologies

**32. New technologies and applications with significant recent advancements**

# TECHNICAL PAPER SUBMMISSION PROCESS

In order to be considered by the Technical Program Committee for presentation at IMS2010, all technical papers must be submitted prior to the deadline, in a summary form (the final manuscript will be requested only after paper selection for accepted papers).

## INSTRUCTIONS FOR SUBMISSION

1. Download the paper submission template from www.ims2010.org to view the suggested manuscript format; authors are urged to adhere to the format and template provided. All submissions must be in English. The paper summary must be in pdf format and the file size must not exceed 1 MB.

2. Submit the papers at the webportal **www.ims2010.org** by November 30, 2009 (local time). Late papers will not be considered. The system will not accept manuscripts exceeding a total of four pages (including the text, figures, tables, references, etc.)

3. Authors of submitted papers will be required to submit a final paper for publication in the Symposium CD ROM. Notice of acceptance, and instructions for the submission of the final manuscript will be sent to authors of accepted papers in January 2010.

## CLEARANCES

It is the authors' responsibility to obtain all required company and government clearances prior to submitting a paper. A statement certifying that such clearance has been obtained, and a completed IEEE copyright transfer form, must accompany the final manuscript of each accepted paper. Details regarding the clearance are available from the symposium website www.ims2010.org.

## PAPER SELECTION CRITERIA

All submitted technical paper summaries will be reviewed by the IMS2010 Technical Program Committee (TPC), using the following criteria:

1. ***Originality.*** How is the contribution significant and innovative, and how does it advance the state-of-the-art? Is previous work by the author(s) and others cited?

2. ***Content.*** Does the paper include quantitative details? Does it provide explicit description and supporting data?

3. ***Clarity.*** Does the paper clarify its contribution and places it in the context of earlier works? Are the writing and the accompanying figures clear and understandable?

4. ***Relevance.*** Is the paper of interest to the membership of the IEEE MTT-S and the attendees of this symposium?

## TECHNICAL AREA SELECTION

The author must select a technical area, from the list of technical areas listed here and in the symposium website, which best describes the contribution of the paper in the judgment of the authors; this author-selected area will be used to determine the appropriate review committee for the paper. Choose a primary and an alternate area when you complete the author registration form; these can be selected from different groups in which the 31 areas are classified. The IMS2010 TPC reserves the right to direct the papers to a more suitable area in case of inappropriate selection of area by the author.

## PRESENTATION FORMATS

Accepted papers can be scheduled for presentation at the Symposium in three different formats:

1. Regular papers, orally delivered from a podium with electronic projection, which permits a limited audience interaction; this format is suitable for significant contributions and formal presentation.

2. Short papers, also presented orally with very limited audience interaction, suited for reporting refinements or improvements in established technologies in a limited time.

3. Interactive Forum Papers, presented in a poster format, with opportunity for display of hardware, demonstration of performance, and allowing informal extended discussions with interested individuals among the attendees.

While the author's preference as to the format will be considered, the paper will be placed in a session, and a presentation format, as recommended by the reviewing Technical Program Committee, consistent with the constraints of the Technical Program.

## NOTIFICATION

Authors will be notified of the decision of the Technical Program Committee in January 2010, via e-mail, using the address provided during the author registration and submission of the paper summary. Authors of accepted papers will be referred to the Symposium webportal for forms and detailed instructions on preparation of the manuscript for publication in the Symposium CD ROM. Final manuscripts must be received by March 4, 2010, to be published in CD ROM, and to qualify for presentation at the symposium.

## STUDENT PAPER COMPETITION

A student paper competition will be held as part of the Symposium. Student papers will be reviewed in the same manner as all other conference papers. To be considered for the competition, the lead author of the paper must be a full-time student (enrolled for at least 9 hours/term for a graduate student or 12 hours/term for an undergraduate) during the time the work was performed, and the paper must be presented by the student author. During the paper submission process, the student submitting the paper is required to provide an e-mail address of the advisor, who will then be asked to certify that the work is primarily that of the student. Papers accepted for the competition will be judged for content and presentation, and awarded first, second and third prizes.

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### RF and Microwave Systems and Applications

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31. Sensors and Sensor Systems

### Emerging Technologies

32. New technologies and applications with significant recent advancements

### SUBMISSION DEADLINES

**Special Session Proposals**
Friday
August 28, 2009

**Workshop**
Posted at www.ims2010.org
Friday
October 16, 2009

**Technical Paper Electronic Submission**
Monday
November 30, 2009

**Notification of Acceptance**
Monday
January 18, 2010

**Final Manuscript for Accepted Papers**
Thursday
March 4, 2010

**Final Manuscript of Workshop Notes**
Thursday
March 11, 2010

IEEE MTT-S INTERNATIONAL MICROWAVE SYMPOSIUM 2010

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