Guest Editorial

THIS TRANSACTIONS' Special Issue is dedicated to the state-of-the-art papers in microwave theory and techniques that have their origins from the papers presented at the 2003 IEEE Microwave Theory and Techniques Society (IEEE MTT-S) International Microwave Symposium (IMS03), held in Philadelphia, PA, June 8–13, 2003. This TRANSACTIONS' Special Issue of IMS03 is unique in many aspects, of which we would like to indulge the community by expounding the paper-selection process.

This TRANSACTIONS' Special Issue began by inviting the authors of the papers accepted to IMS03 to contribute significantly expanded papers for potential inclusion in this Special Issue. What made the paper expansion for this TRANSACTIONS' Special Issue different over the past years was the requirement that 2/3 of the submitted paper should be new and different from the digest papers presented at the IMS03. This request was based on the fact that now the digest of the IEEE sponsored IMS03 is considered archival since it is readily available online from IEEE Xplore along with transaction papers. We had received 136 papers, which correspond to a response rate of 27%. We would like to thank all the authors for their cooperation of making this TRANSACTIONS' Special Issue possible.

1) Paper-Submission Process: To accommodate this change in approach, the deadline of paper submission was moved up by approximately three weeks to April 17. (For further information please visit http://www.ims2003.org/SpecialIssue). The paper-submission process was fully electronic, as we have become accustomed to over the last few years. We would like to acknowledge the efforts of Dr. Jeffery Pond, Naval Research Laboratory (NRL), Washington, DC. Without Jeff's support and dedication, the paper-submission process could not effectively and economically be completed. It is also important to acknowledge the support of Dr. Jenshan Lin, RFIC liaison and webmaster of the IMS03 web site (formerly of Agere Systems, now a professor with the University of Florida, Gainesville), who provided another layer of protection by keeping a record of all the papers submitted in the event that the NRL website would experience "an unusual overload" during the April paper-submission deadline. Each submitted paper was converted to ".pdf" format and then complemented by an electronic copy of the digest paper (submitted by March 10, 2003) and the summary (submitted by December 9, 2002). We would like to acknowledge the support provided by Prof. Bill Jemison (Lafayette College, Easton, PA) who served as part of the digest electronic paper-submission management team with Mira Digital Publishing (Mira took the responsibility of electronic paper collection and distribution of the IMS03).

2) Reviewer Selection Process: To assure a rapid paper review process by readily available experts, our committee sought to identify qualified reviewers in addition to the IMS03 Technical Program Committee (TPC) membership. A list of qualified reviewers were generated by March 2003 from this TRANSACTIONS' Reviewers List, the chairs of TPCs (all 32 sub-committees), and the technical coordinating committee chairs (all 21 sub-committees). As part of our request, experts were also identified who are not necessarily members of the IEEE MTT-S. These experts were from other IEEE societies (such as the IEEE Antennas and Propagation Society (IEEE AP-S) and the IEEE Lasers and Electro-Optics Society (IEEE LEOS)] and other national electrical engineering societies such as the Institution of Electrical Engineers (IEE), U.K. and the Institute of Electrical, Information and Communication Engineers (IEICE), Japan. We requested that authors suggest names of experts at the time of their paper submission; however, we made a decision to use their suggested experts for other submitted papers and not for theirs. The additional reviewers on top of the dedicated IMS03 TPC members assured us that each submitted paper would receive at least four completed reviews, while no reviewer received more than four papers to review. This committed goal was achieved for all the papers with approximately 35% of the submitted papers receiving as many as five reviews and approximately 5% of the submitted papers receiving more. The dedication of this TRANSACTIONS' Special Issue's reviewers is highly appreciated and the accompanying alphabetical list provides the tally of all who had served as a reviewer for this Special Issue. A database of all the potential reviewers sorted by their area of expertise was generated, which is to be shared with this TRANSACTIONS' Editor-in-Chief and the organizers of the upcoming IMS04, to be held in Dallas-Fort Worth, TX.

3) Review Process: The potential reviewers were contacted prior to the April deadline to make sure that they would be able to complete the review within the allotted review time of approximately six weeks. The papers were sub-divided among the guest editors by their area of expertise by the end of April and the papers were handled by each guest editor. The majority of papers were in passive microwave circuits, followed in a descending order in the areas of field theory, active circuits, and subsystems. The applications-related papers constitute the smallest percentage of the submitted papers. The review evaluation form was also modified to reflect the 2/3 expansion requirement and, for the first time, including an option of revising and resubmitting papers to be considered for a Mini-Special Issue of this TRANSACTIONS in April 2004. It has been the tradition in the past that due to lack of time for revision and reevaluation of the papers, a number of quality and quite interesting papers could not be published following the rapid publication track, as offered by this TRANSACTIONS' December Special Issues devoted to the IMS. This concern was raised in October 2002 with this TRANSACTIONS' then Editor-in-Chief, Prof. David Rutledge; thanks to his vision, the concept of the Mini-Special Issue has evolved, and due to support of the current Editor-in-Chief, Prof. Michael Steer, a

Digital Object Identifier 10.1109/TMTT.2003.820154

select number of papers that required a minor revision will be revised, re-reviewed, and published in April 2004. We believe this change in policy will enormously benefit the microwave community by providing a fully expanded paper dealing with the most exciting activities in microwaves in an expedited manner. We feel that it is a change that will be also welcomed by many authors since the papers are to be re-reviewed by the same reviewers that have commented on their original submission.

We would like to acknowledge the efforts of various individuals who assisted us in achieving this task. In particular, we specifically benefited from the guidance and assistance received from Dr. George Heiter, who has been very actively involved with this TRANSACTIONS' Special Issues dedicated to the IMS over the past three years. We also appreciate all the hard work performed by our administrative support staff, Miss Sushmita Srikant and Mr. Yi Xiao, two graduate students at Drexel University, Philadelphia, PA, Ms. Emilie Davenport, editorial assistant to Editor-in-Chief Michael Steer, North Carolina State University, Raleigh, and Dr. Larry Whicker, LRW Associates, Waxhow, NC, who provided assistance with the collection of copyright and page charge forms.

Once again, we express our thanks to the reviewers for their time, detailed comments, and critiques that helped us to make decisions on the submitted papers. (Please confer with the alphabetical list of reviewers.) Without their assistance, it would have been impossible for us to achieve this task. Forty-one papers were accepted, which corresponds to an acceptance rate of 30%, and of which 37 papers have met the tight publication deadline for this TRANSACTIONS. The papers of this Special Issue are organized based on each technical area and we hope that their technical flow and content will be of great interest and use to you.

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Afshin S. Daryoush (S'84–M'86–SM'91, F'99) received the B.S.E.E. degree from Case Western Reserve University, Cleveland, OH, in 1981, and the M.S.E.E. and Ph.D. degrees in electrical engineering from Drexel University, Philadelphia, PA in 1984 and 1986, respectively.

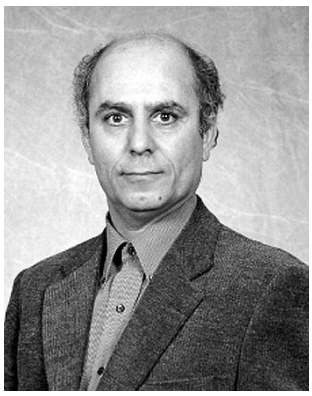
Upon graduation, he joined the faculty of Drexel University, as DuPont Assistant Professor of Electrical and Computer Engineering. In 1990, he became an Associate Professor and Associate Director of the Center for Microwave/Lightwave Engineering. In 1998, he became a Full Professor. He has developed and taught a variety of undergraduate and graduate courses in electromagnetic fields, microwave and photonic devices, RF circuits, and antennas. He was a Summer Faculty Fellow with the NASA-Lewis Research Center, Cleveland, OH. In the summers of 1989 and 1990, he was with the Naval Air Development Center, Warminster, PA. During the 1996–1997 academic year, he was the recipient of the Drexel University Sabbatical Leave Award for which he was a Visiting Scholar with NTT Wireless Systems Laboratories, Yokosuka, Japan. He has also conducted research in microwave photonics, resulting in publication of over 200 technical papers. He holds four U.S. patents, one of which is currently licensed for commercialization. He has served as Guest Editor for *The Journal of Franklin Institute* and *Microwave and Lightwave Technology Letters*.

Prof. Daryoush is a member of Sigma Xi since 1986 and served as president of the Drexel University Chapter in 1999. He has also served the IEEE Philadelphia Joint Chapter of the Antennas and Propagation (AP)/Microwave Theory and Techniques (MTT) Societies in various capacities such as vice chair, chair, and ex-officio from 1989 to 1995. As the chapter officer, he had co-organized the annual Benjamin Franklin Symposium and was one of the organizers of the 2003 IEEE Microwave Theory and Techniques Society (IEEE MTT-S) International Microwave Symposium (IMS), held in Philadelphia, PA. HE is a member of the MTT-3 Technical Sub-Committee on Lightwave Engineering. He has also served as member of the Technical Program Committee of the IEEE MTT-S, IEEE AP-S (IEEE Antennas and Propagation Society), and the IEEE Lasers and Electro-Optics Society (IEEE LEOS) sponsored international meetings. He has organized and lectured for a number of IEEE sponsored workshops. He was the recipient of the 2000 University Graduate Teaching Award and the recipient of the Microwave Prize presented at the 16th European Microwave Conference, Dublin, Ireland. He was also the recipient of the 1986 and 1994 Best Presentation Awards of the IEEE MTT-S IMS. He has delivered invited talks on microwave photonics to numerous U.S. Government sponsored workshops such as the JASON Program. He was also a lecturer as part of the 1999 Second Summer School on "Optics Interaction with Microwave Circuits" Autrans, France, and the 2002 North-Atlantic Treaty Organization (NATO)-sponsored LS-229 on "Optics Microwave Interactions" held in France, Germany, and Hungary.

Aly E. Fathy (S'82–M'84–SM'92) received the B.S.E.E., B.S. in pure and applied mathematics, and M.S.E.E. degrees from Ain Sham University, Cairo, Egypt, in 1975, 1979, and 1980, respectively, and the Ph.D. degree from the Polytechnic Institute of New York, Brooklyn, in 1984.

In February 1985, he joined the RCA Research Laboratory (currently the Sarnoff Corporation), Princeton NJ, as a Member of the Technical Staff and, in 2001, he became a Senior Member of the Technical Staff. He was also an Adjunct Professor with the Cooper Union School of Engineering, New York, NY, where he taught various graduate and undergraduate courses. Since August 2003, he has been an Associate Professor with The University of Tennessee-Knoxville. While with the Sarnoff Corporation, he was engaged in the research and development of various enabling technologies such as high-Tc superconductors, low-temperature co-fired ceramic (LTCC), and reconfigurable holographic antennas. He developed various microwave components/subsystems such as radial combiners, direct broad antennas (DBSs), speed sensors, and LTCC packages for mixed-signal applications. He holds eight U.S. patents.

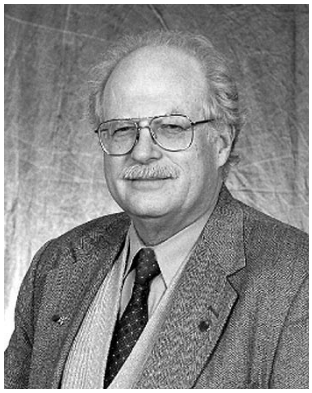
Dr. Fathy is a member of Sigma Xi and Eta Kappa Nu. He is also a member of the IEEE Antennas and Propagation Society (IEE-APS), the IEEE Microwave Theory and Techniques Society (IEEE MTT-S). He is an active member of the IEEE MTT-S International Microwave Symposium (IMS) Technical Program Committee and is currently the chair of the Passive Components Sub-Committee. He was the recipient of the 1988, 1994, 1995, 1997, and 1999 Sarnoff Outstanding Achievements Award.



Mohammad Madihian (S'81–M'83–SM'88–F'98) received the B.Sc. degree from the Iran University of Science and Technology, Isfahan, Iran, in 1976, and the M.Sc. and Ph.D. degrees from Shizuoka University, Shizuoka, Japan, in 1980 and 1983, respectively, all in electronic engineering.

In 1983, he joined NEC Central Research Laboratories, Kawasaki, Japan, where he was involved with research and development of Si- and GaAs-device-based digital as well as microwave and millimeter-wave monolithic integrated circuits (ICs). In 1999, he joined NEC Laboratories America Inc., Princeton, NJ, where he is currently the Head of the Microwave and Signal Processing Department and conducts physical/medium access control layer signal-processing activities for high-speed wireless networks and personal communications applications. He has authored or coauthored over 130 scientific publications including 20 invited talks. He holds 35 Japan or U.S. patents on device and circuit applications. He has served as a Guest Editor for the *Japan IEICE Transactions on Electronics*.

Dr. Madihian has served as guest editor for the IEEE JOURNAL OF SOLID-STATE CIRCUITS. He serves on the IEEE Speaker's Bureau, the IEEE GaAs IC Symposium Executive Committee, the IEEE Radio and Wireless Conference Steering Committee, the IEEE MTT-S International Microwave Symposium (IMS) Technical Program Committee, the IEEE MTT-6 Subcommittee, the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES Editorial Board, the Technical Program Committee of the International Conference on Solid-State Devices and Materials, and the Asia–Pacific Microwave Conference. He was the recipient of the 1988 IEEE Microwave Theory and Techniques Society (IEEE MTT-S) Best Paper Microwave Prize and the 1998 IEEE Fellow Award. He was also the recipient of eight NEC Distinguished Research and Development Achievement Awards.



Arye Rosen (M'77–SM'80–F'92) received the Masters degree in engineering from The Johns Hopkins University, Baltimore, MD, the M.Sc. degree in physiology from the Jefferson Medical College, Philadelphia, PA, and the Ph.D. degree in electrical engineering from Drexel University, Philadelphia, PA.

He is a former Distinguished Member of the Technical Staff of the Sarnoff Corporation (formerly the David Sarnoff Research Center), Princeton, NJ, where he was for 35 years, and where he was responsible for research and development in the areas of millimeter-wave devices and microwave optical interaction. He is currently the Academy Professor of Biomedical and Electrical Engineering with the School of Biomedical Engineering, Science and Health Systems, Drexel University, where he has also been an Adjunct Professor with the Department of Electrical and Computer Engineering since 1981. He is also an Associate in Medicine with the Jefferson Medical College, where he has been engaged in research with the Division of Cardiology since 1970. He has authored over 150 technical papers, co-edited *High-Power Optically Activated Solid-State Switches* (Norwood, MA: Artech House, 1993), and *New Frontiers in Medical Device Technology* (New York: Wiley, 1995), as well as six book chapters in the field of engineering and medicine. He holds over 50 U.S. patents in the fields of engineering and medicine.

Dr. Rosen is a member of the National Academy of Engineering since 2002. He was an IEEE Distinguished Microwave Lecturer from 1997 to 2000, during which time he had the opportunity to present his own as well as others' work in the U.S., Japan, Europe, and Middle east. He has been the recipient of numerous awards, most recently the 2000 IEEE Third Millennium Medal and a 2000 IEEE Microwave Award. He was also the recipient of several RCA and Sarnoff Laboratories Outstanding Achievement and other professional awards, a 1989 IEEE Region One Award, and a 1997 Drexel University College of Engineering, Electrical and Computer Engineering Department Distinguished Alumni Award.