

**1996 IEEE MTT-S
INTERNATIONAL MICROWAVE
SYMPOSIUM DIGEST**

*Technical Program Contents
Wednesday June 19th*





1996 Microwave Symposium

Technical Program Schedule

Session WE1A

Low Loss Acoustic Filters

8:00 am–9:50 am **Room 135** **Wednesday, June 19, 1996**

Chair: R. Weigel, Technical University of Munich, Co-chair: B. McAvoy, Carnegie Mellon

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Session WE1B

TLM Modeling of Microwave Structures

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Chair: R. Vahldieck, University of Victoria, Co-chair: P. Russer, Inst. F. Hochfrequenz Technik

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Session WE1C

Filters I

8:00 am–9:50 am **Room 133** **Wednesday, June 19, 1996**

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Millimeter Wave/Optical Applications in Personal Communications

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Session WE2A

Power Amplifiers, Wireless Applications

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Chair: J. Eisenberg, John A. Eisenberg and Associates, Co-chair: J. Heaton, Lockheed-Martin

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Room 132

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*Manuscript not available at time of publication

Session WE2E

Control and Frequency Translation

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Chair: D. Peterson, Microwave Device Technology, Co-chair: P. Staecker, M/A-COM

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Session WE3A

Power Amplifier Technologies

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Chair: A. Platzker, Raytheon ADC, Co-chair: K. Ikassi-Anastasiou, Louisiana State University

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Session WE3D

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*Manuscript not available at time of publication

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Wednesday, June 19, 1996

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Session WE4A

Biological Effects and Medical Applications

4:00 pm–5:50 pm Room 135 Wednesday, June 19, 1996
Chair: G. D’Inzeo, Univ. “La Sapienza” Co-chair: A. Rosen, David Sarnoff Research Center

WE4A-1	Withdrawn	
4:00 pm		
WE4A-2	A New Gel Phantom Used for Three Dimensional Measurement of the Local SAR	1089
4:20 pm	M. Miyakawa and S. Hoshina	
WE4A-3	Complete Evaluation of Conformational MW Effects on ACH Channels with Parallel Computing	1093
4:30 pm	L. Tarricone	
WE4A-4	Design and Modeling Using the FDTD Method of Planar Multi-Applcators for Microwave Hyperthermia	1097
4:50 pm	P.-Y. Cresson, C. Michel, L. Dubois, M. Chive and J. Pribetich	
WE4A-5	Generation of a Highly Focused Electromagnetic Field in a Lossy Biological Medium by Controlling the Phase and Time Excitation of the Microwave Sources	1101
5:10 pm	K.S. Nikita and N.K. Uzunoglu	
WE4A-6	Design and Modeling Using the FDTD Method of a New Generation of Applcators Realized From Coaxial Antennas for Microwave Hyperthermia	1105
5:30 pm	D. Despretz, J.C. Camart, J. Pribetich and M. Chive	

Session WE4B

Quasi-Optical Amplifiers and Systems

4:00 pm–5:50 pm

Room 132

Wednesday, June 19, 1996

Chair: C. Jackson, TRW

WE4B-1	A PHEMT Based Monolithic Plane Wave Amplifier for 42 GHz	1111
4:00 pm	E.A. Sovero, Y. Kwon, D.S. Deakin, A.L. Sailer and J.A. Higgins	
WE4B-2	Quasi-Optical Traveling Wave Amplifiers	1115
4:20 pm	A. Alexanian, H.-S. Tsai and R.A. York	
WE4B-3	A 10-Element Active Lens Amplifier on a Dielectric Slab	1119
4:40 pm	A.R. Perkons and T. Itoh	
WE4B-4	Monolithic 40-GHz 670-mW HBT Grid Amplifier	1123
4:50 pm	C.-M. Liu, E.A. Sovero, W.J. Ho, J.A. Higgins, M.P. De Lisio and D.B. Rutledge	
WE4B-5	A 44–60 GHz Monolithic pHEMT Grid Amplifier	1127
5:10 pm	M.P. De Lisio, S.W. Duncan, D.-W. Tu, S. Weinreb, C.-M. Liu and D.B. Rutledge	
WE4B-6	A Quasi-Optical Receiver with Angle Diversity	1131
5:20 pm	W.A. Shiroma, E.W. Bryerton, S. Hollung and Z.B. Popović	
WE4B-7	Millimeter-Wave Imaging Using Neural Networks for Object Recognition	1135
5:40 pm	K. Watabe, K. Shimizu, K. Mizuno and M. Yoneyama	

Session WE4C

Micromachining for Microwave and Millimeter-Wave Applications

4:00 pm–5:50 pm

Room 133

Wednesday, June 19, 1996

Chair: G.M. Rebeiz, University of Michigan, Co-chair: A. Riddle, Macallan Consulting

WE4C-1	Characteristics of Micromachined Switches at Microwave Frequencies	1141
4:00 pm	C. Goldsmith, J. Randall, S. Eshelman, T.H. Lin, D. Denniston, S. Chen and B. Norvell	
WE4C-2	Novel Micromachined Approaches to MMICs Using Low-Parasitic, High-Performance	
4:20 pm	Transmission Media and Environments	1145
	L.P.B. Katehi and G.M. Rebeiz	
WE4C-3	Micromachining for Submillimeter-Wave Circuits	1889
4:40 pm	D. Rutledge	
WE4C-4	Micromachined Cellular Filters	1149
5:00 pm	R. Ruby	
WE4C-5	Folded U-Shaped Microwire Technology for Ultra-Compact 3D MMICs	1153
5:20 pm	K. Onodera, M. Hirano, I. Toyoda, M. Tokumitsu and T. Tokumitsu	
WE4C-6	MM-Wave Tapered Slot Antennas on Micromachined Photonic Bandgap Dielectrics	1157
5:40 pm	T.J. Ellis and G.M. Rebeiz	



Session WE4D

Commercial and Space Microwave System Applications

4:00 pm–5:50 pm		Room 134	Wednesday, June 19, 1996
		Chair: A. Katz, Trenton State College, Co-chair: J.K. McKinney, Maury Microwave	
WE4D-1	13-Element Phase and Amplitude Combining Network for Use in a Nulling Antenna Subsystem		*
4:00 pm	C.G. Wier		
WE4D-2	A 20 GHz MMIC Power Module for Transmit Phased Array Applications		1163
4:20 pm	C. Yuen, E. Balderrama, W. Findley, L. Kirby, J. Lee and P. Sturzu		
WE4D-3	Low Cost Electronically Steered Antenna and Receiver System for Mobile Satellite Communications		1167
4:40 pm	J.I. Alonso, J.M. Blas, L.E. García, J. Ramos, J. de Pablos, J. Grajal, G. Gentilli, J. Gismero and F. Pérez		
WE4D-4	60-GHz Transceiver for High-Speed Wireless LAN System		1171
5:10 pm	T. Ninomiya, T. Saito, Y. Ohashi and H. Yatsuka		
WE4D-5	Simple Techniques to Correct for VCO Nonlinearities in Short Range FMCW Radars		1175
5:30 pm	J. Fuchs, K.D. Ward, M.P. Tulin and R.A. York		

Session WE4E

Passive Component Technology

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		Chair: W.C. Tang, COMDEV, Ltd.	
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4:00 pm	M. Engels and R.H. Jansen		
WE4E-2	Modeling of Generalized Double Ridge Waveguide T-Junctions		1185
4:20 pm	C. Wang, K.A. Zaki and R. Mansour		
WE4E-3	Novel Micromachined LIGA Microstrip Transmission Lines and Filters		1189
4:40 pm	T.L. Willke and S.S. Gearhart		
WE4E-4	Coplanar Stripline Components for High Frequency Applications		1193
5:10 pm	K. Goverdhanam, R.N. Simons, N. Dib and L.P.B. Katehi		
WE4E-5	A Novel Phase Shifter Using a GaAs MESFET in Passive Configuration		1197
5:20 pm	K. Purnell and A. Katz		
WE4E-6	A Phase Compensated, Motion Insensitive Coaxial Connector		1201
5:40 pm	J.W. Gippich		

*Manuscript not available at time of publication