

Table of Contents

Technical Program

MONDAY MAY 7, 1990

West Ballroom A, B

SESSION I: MMICs FOR RECEIVERS

Chairman: Eric Strid, Cascade Microtech

Co-Chairman: Bill Perkins, GE Electronics Lab

8:50	GaAs Devices and the MIC Applications in Satellite Broadcasting (Invited) , Y. Konishi, <i>Uniden Corporation, Ichikawa, Japan</i>	1
9:20	A Low Cost High Performance MMIC Low Noise Downconverter for Direct Broadcast Satellite Reception , P. Wallace, R. Michels, J. Bayruns, S. B. Christiansen, N. Scheinberg, J. Wang, R. Goyal and M. Patel, <i>ANADIGICS, Inc., Warren, NJ</i>	7
9:40	A Highly Integrated Two Channel MMIC Down Converter with Gain Control , J. Staudinger, W. Seely, J. M. Golio and B. Beckwith, <i>Motorola Inc., Chandler, AZ</i>	11
10:00	High-Linearity, Low DC Power Monolithic GaAs HBT Broadband Amplifiers to 11 GHz , B. L. Nelson, D. K. Umemoto, C. B. Perry, R. Dixit, B. R. Allen, M. E. Kim and A. K. Oki, <i>TRW Inc., Redondo Beach, CA</i>	15

MONDAY, MAY 7, 1990

West Ballroom A, B

SESSION II: BROADBAND AMPLIFIERS

Chairman: Mahesh Kumar, American Electronics Laboratories Inc.

Co-Chairman: Derry Hornbuckle, Hewlett-Packard

10:50	GaAs HBT MMIC Broadband Amplifiers from DC to 20 GHz , K. W. Kobayashi, D. K. Umemoto, R. Esfandiari, A. K. Oki, L. M. Pawlowicz, M. E. Hafizi, L. Tran, J. B. Camou, K. S. Stolt, D. C. Streit and M. E. Kim, <i>TRW Inc., Redondo Beach, CA</i>	19
11:10	High-Gain, Low-Noise Monolithic HEMT Distributed Amplifiers up to 60 GHz , C. Yuen, C. Nishimoto, M. Glenn, C. Webb, S. Bandy and G. Zdasiuk, <i>Varian Research Center, Palo Alto, CA</i>	23
11:30	Monolithic 9 to 70 GHz Distributed Amplifier , N. Camilleri, P. Chye, A. Lee and P. Gregory, <i>Avantek Incorporated, Folsom, CA</i>	27
11:50	5-100 GHz InP CPW MMIC 7-Section Distributed Amplifier , R. Majidi-Ahy, M. Riazat, C. Nishimoto, M. Glenn, S. Silverman, S. Weng, Y. C. Pao, G. Zdasiuk, S. Bandy and Z. Tan, <i>Varian Research Center, Palo Alto, CA</i>	31

MONDAY MAY 7, 1990

West Ballroom A, B

SESSION III: POWER AMPLIFIERS

Chairman: Hua Quen Tserng, Texas Instruments

Co-Chairman: Peter Asbeck, Rockwell International

- | | | |
|-------------|---|----|
| 1:30 | Octave Band Eleven Watt Power Amplifier MMIC , J. J. Komiak,
<i>General Electric Company, Syracuse, NY</i> | 35 |
| 1:50 | A 2.5 Watt X-Band High Efficiency MMIC Amplifier , V. D. Hwang,
Y. C. Shih, T. Y. Chi and D. C. Wang, <i>Hughes Aircraft Company,</i>
<i>Torrance, CA</i> | 39 |
| 2:10 | 5 W Monolithic HBT Amplifier for Broadband X-Band Applications ,
B. Bayraktaroglu, M. A. Khatibzadeh and R. D. Hudgens, <i>Texas</i>
<i>Instruments Incorporated, Dallas, TX</i> | 43 |
| 2:30 | Rectification Failure in GaAs MESFETs Subjected to Single Pulses of
Intense Microwave Radiation , J. H. McAdoo, W. M. Bollen, R. Seeley,
W. Catoe and J. Frey*, <i>Mission Research Corporation, Newington, VA;</i>
<i>*University of Maryland, College Park, MD</i> | 47 |

MONDAY, MAY 7, 1990

West Ballroom C

SESSION IV: SIGNAL PROCESSING COMPONENTS I

Chairman: Sanjay B. Moghe, Northrop Corporation, DSD

Co-Chairman: Octavius Pitzalis Jr., EESof Inc.

- | | | |
|-------------|--|----|
| 1:30 | A Novel Aperture-Isolation Circuit for Use in Phased Array Systems ,
A. W. Jacomb-Hood, M. Booth, D. E. Houston and T. S. Alcorn, <i>GE</i>
<i>Electronics Laboratory, Syracuse, NY</i> | 51 |
| 1:50 | Miniature Monolithic Microwave Frequency Diplexers , K. M. Simon,
M. J. Schindler, Y. Tajima and A. M. Bertrand, <i>Raytheon Company,</i>
<i>Lexington, MA</i> | 55 |
| 2:10 | A New Concept to Cancel Insertion Phase Variation in MMIC
Amplitude Controller , D. Roques, JL. Cazaux and M. Pouysegur,
<i>ALCATEL ESPACE, Toulouse Cedex, France</i> | 59 |
| 2:30 | Design and Fabrication of Two-pole Monolithic Bulk Acoustic Filters ,
J. Rosenbaum and D. Dawson, <i>Westinghouse ATL, Baltimore, MD</i> | 63 |

MONDAY, MAY 7, 1990

West Ballroom C

SESSION V: SIGNAL PROCESSING COMPONENTS II

Chairman: R. B. Gold, Massachusetts Microelectronics Center

Co-Chairman: I. Bahl, ITT

- | | | |
|-------------|--|----|
| 3:10 | Implementation of RF/Microwave Receiver Components on a
Semi-Custom Silicon Bipolar Array , K. J. Negus and J. N. Wholey,
<i>Avantek, Inc., Newark, CA</i> | 67 |
|-------------|--|----|

3:30	An MMIC Amplifier for Automatic Level Control Applications, K. R. Nary and R. L. Van Tuyl*, <i>University of California, Santa Barbara, CA</i> ; * <i>Hewlett-Packard Laboratories, Palo Alto, CA</i>	73
3:50	A Monolithic GaAs HBT Upconverter, A. Y. Umeda, C. T. Matsuno, A. K. Oki, G. S. Dow, K. W. Kobayashi, D. K. Umemoto and M. E. Kim, <i>TRW Inc., Redondo Beach, CA</i>	77
4:10	Three Channel I.F. Multiplexers, S. Thompson and Z. Lemnios, <i>Ford Microelectronics, Inc.</i> ; W. Guffey, A. Chamberlain and T. Robbio, <i>Ford Aerospace, Newport Beach, CA</i> ; W. Nelson, <i>Wheeler-Nelson, Palo Alto, CA</i>	81

TUESDAY, MAY 8, 1990

West Ballroom A, B

SESSION VI: T/R MODULES

Chairman: Ho Huang, Comsat Laboratories

Co-Chairman: Eliot Cohen, Defense Advanced Research Projects Agency

8:00	European MMIC Activities (Invited), J. Magarshack, <i>Thomson Composants Microondes, France</i>	85
8:30	MIMIC Technology Transportability, W. H. Perkins, <i>GE</i> ; N. Jansen, <i>M/A-COM</i> ; T. A. Midford, <i>Hughes</i> ; W. C. Niehaus, <i>AT&T</i> ; D. H. Reep, <i>GE</i> ; J. Tenedorio, <i>Harris</i>	91
8:50	Multifunction Chip Set for T/R Module Receive Path, D. Willems, I. Bahl, M. Pollman, J. Jorgenson and E. Griffin, <i>ITT GaAs Technology Center, Roanoke, VA</i> ; M. Coluzzi, S. Tantod and C. Andricos, <i>ITT Gilfillan, Van Nuys, CA</i>	95
9:10	A Single Chip 2-20 GHz T/R Module, M. J. Schindler, S. L. Chu, T. E. Kazior, A. M. Bertrand and K. M. Simon, <i>Raytheon Company, Lexington, MA</i>	99

TUESDAY, MAY 8, 1990

West Ballroom A, B

SESSION VII: MIXERS AND VCOs

Chairman: Dale Dawson, Westinghouse ESG

Co-Chairman: William Niehaus, AT&T Bell Laboratories

10:00	Monolithic Ka Band VCO Using Quarter Micron GaAs MESFETs and Integrated High-Q Varactors, M. G. McDermott, C. Sweeney, M. Benedek and G. Dawe, <i>GAMMA Monolithics, Woburn, MA</i>	103
10:20	K_u- and K-Band GaAs MMIC Varactor-Turned FET Oscillators Using MEV Ion-Implanted Buried-Layer Back Contacts, P. J. McNally, T. Smith, F. R. Phelleps and K. M. Hogan, <i>COMSAT Laboratories, Clarksburg, MD</i> ; B. Smith, <i>Hughes Aircraft, El Segundo, CA</i> ; H. Deitrich, <i>Naval Research Laboratory, Washington, DC</i>	107
10:40	A Monolithic 94 GHz Balanced Mixer, B. Adelseck, J. M. Dieudonné and K. E. Schmiegner, <i>Telefunken Systemtechnik, Ulm, FRG</i> ; A. Colquhoun, G. Ebert and J. Selders, <i>Telefunken Electronic, Heibronn, FRG</i>	111

11:00	An X-Band Monolithic Double Double-Balanced Mixer for High Dynamic Receiver Application, T. N. Ton, G. S. Dow, T. H. Chen, M. Lacon, T. S. Lin, S. Bui and D. Yang, <i>TRW Inc., Redondo Beach, CA</i>	115
--------------	---	-----

TUESDAY, MAY 8, 1990
West Ballroom A, B

SESSION VIII: CONTROL CIRCUITS

Chairman: Vladimir Sokolov, Honeywell, SRC

Co-Chairman: Wendell Petersen, Microwave Monolithics Inc.

1:30	A High Power 2-18 GHz T/R Switch, M. J. Schindler and T. E. Kazior, <i>Raytheon Co., Lexington, MA</i>	119
1:50	A Compact Broadband, Six-Bit MMIC Phasor with Integrated Digital Drivers, C. Moye, G. Sakamoto and M. Brand, <i>Hughes Aircraft Company, El Segundo, CA</i>	123
2:10	Broad Band Monolithic Cross Point Switch Matrices, S. Powell, P. Becker, M. Dupuis and C. Nagy, <i>Lockheed Sanders Inc., Nashua, NH</i>	127
2:30	A 10-14 GHz Linear MMIC Vector Modulator with Less than 0.1 dB and 0.8° Amplitude and Phase Error, F. L. M. Van Den Bogaart, <i>L.E.P., Limeil-Brevannes, France</i> ; R. Pyndiah, <i>F.E.L.-T.N.O., Hague, Netherlands</i>	131