

**Amir Mortazawi, Fellow, IEEE**

Professor

Department of Electrical Engineering and Computer Science  
UNIVERSITY OF MICHIGAN**Role in the Center: Co-Investigator****Areas of Research:** RF and microwave circuits including: microwave and millimeter-wave power amplifiers, spatial power combining and thin film ferroelectric based frequency agile circuits.1301 Beal Avenue  
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**A. PROFESSIONAL PREPARATION****State University of NY, Stony Brook****University of Texas at Austin****University of Texas at Austin**

Electrical Engineering, B.E., 1987

Electrical Engineering, M.Eng.Sc., 1988

Electrical Engineering, Ph.D., 1990

**B. APPOINTMENTS**

<b>Professor</b> , EECS Department, University of Michigan	2006-present
<b>Associate Professor</b> , EECS Department, University of Michigan	2001-2006
<b>Associate Professor</b> , EECS Department, North Carolina State University	1998-2001
<b>Associate Professor</b> , EECS Department, University of Central Florida	1995-1998
<b>Assistant Professor</b> , EECS Department, University of Central Florida	1990-1995

**C. SYNERGISTIC ACTIVITIES**

Mortazawi's research interests include millimeter-wave power combining oscillators and amplifiers, quasi-optical techniques, frequency agile materials and nonlinear analysis of microwave circuits.

Prof. Mortazawi has broad experience in the design and characterization of RF, microwave and millimeter-wave circuits. He has worked on the design and circuit modeling of microwave and millimeter-wave oscillators, power amplifiers, phase shifters, phased arrays and antennas. Mortazawi has published more than 100 publications in archival journal and conference proceedings.

Current Research Projects include: experimental work on RF and microwave circuits; microwave and millimeter-wave power amplifiers, spatial power combining and thin film ferroelectric based frequency agile circuits. Extended resonance Power Amplifiers and Oscillators. Tunable Low Loss Thin Film BST Varactors for Tunable RF and Microwave applications.

Prof. Mortazawi is currently the Editor for the IEEE Transactions on Microwave Theory and Techniques. Prof. Mortazawi is co-chair of IEEE MTT-16 committee Phased Arrays and chair of the IEEE-MTTS Technical Program Committee on Active and Quasi-Optical Arrays. He was an Associate Editor for the IEEE Transactions on Antennas and Propagation from 1998-2001. Other professional service includes: Member of IEEE MTT Administrative Committee, Secretary, Administrative Committee, IEEE MTT Society, Chair, Technical Program Sub-Committee on Active and Quasi-Optical Arrays IEEE MTT-S, 1996 - 2001,

**D. RELATED PUBLICATIONS**

1. J. Fu, X. Zhu, D.Y. Chen, J. Philips and A. Mortazawi, "A Linearity Improvement Technique for Thin-film Barium Strontium Titanate Capacitors," IEEE MTT-S International Microwave Symposium, 2006.
2. X. Zhu, D. Chen, Z. Jin, J. D. Phillips and A. Mortazawi, "Characterization of Thin Film BST Tunable Capacitors Using A Simple Two Port Measurement Technique", IEEE MTT-S International Microwave Symposium, 2005.
3. Tombak, A.; Maria, J.-P.; Agyavives, F.; Zhang Jin; Stauf, G.T.; Kingon, A.I.; Mortazawi, A. "Tunable barium strontium titanate thin film capacitors for RF and microwave applications," Microwave and Wireless Components Letters, IEEE , Volume: 12 Issue: 1 , Jan. 2002, pp. 3-5.

4. Zhang Jin; Tombak, A.; Maria, J.-P.; Boyette, B.; Stauf, G.T.; Kingon, A.I.; Mortazawi, A. "Microwave characterization of thin film BST material using a simple measurement technique," 2002 IEEE MTT-S, International Microwave Symposium Digest, pp. 1201–1204.
5. A. Tombak, T. Ayguavives, J.P. Maria, G.T. Stauf, A. Kingon and A. Mortazawi, "Low Voltage Tunable Barium Strontium Titanate Thin Film capacitors for RF and Microwave Applications," Microwave Symposium Digest. 2000 IEEE MTT-S International, Volume: 3 , 2000, pp. 1345–1348.
6. Ayguavives, T.; Tombak, A.; Maria, J.; Stauf, G.T.; Ragaglia, C.; Roeder, J.; Mortazawi, A.; Kingon, A.I, "Physical properties of (Ba,Sr)TiO<sub>3</sub> thin films used for integrated capacitors in microwave applications," IEEE International Symposium on Applications of Ferroelectrics, ISAF 2000. Proceedings of the 2000 12th, Volume: 1, 2000 pp. 365–368.
7. Ortiz, S.C.; Hubert, J.; Mirth, L.; Schlecht, E.; Mortazawi, A. "A high-power Ka-band quasi-optical amplifier array," Microwave Theory and Techniques, IEEE Transactions on , Volume: 50 Issue: 2 , Feb. 2002, pp. 487–494.
8. Ortiz, S.; Hubert, J.; Mirth, L.; Schlecht, E.; Mortazawi, A., "A 25 watt and 50 watt Ka-band quasi-optical amplifier," 2000 IEEE MTT-S International Microwave Symposium Digest, Volume: 2, pp. 797–800.
9. Martin, A.L.; Mortazawi, A, "A class-E power amplifier based on an extended resonance technique," IEEE Transactions on Microwave Theory and Techniques, Volume: 48, Issue: 1, Jan. 2000, pp. 93–97.
10. Jin, Z.; Ortiz, S.; Mortazawi, A., "Design of a novel digital phase shifter at x-band," IEEE MTT-S International Microwave Symposium Digest, Volume: 1, 2001, pp. 233–236.
11. A. Tombak and A. Mortazawi, "A Novel Low-Cost Beam-Steering Technique Based on the Extended-Resonance Power-Dividing Method," IEEE Transactions on Microwave Theory and Techniques, Volume: 52 , Issue: 2 , Feb. 2004, Pages: 664–670.
12. X. Jiang, S. Ortiz and A. Mortazawi, "A Ka-Band Power Amplifier Based on the Traveling-Wave Power-Dividing/Combining Slotted-Waveguide Circuit" IEEE Transactions on Microwave Theory and Techniques, Volume: 52 , Issue: 2 , Feb. 2004, Pages: 633–639.
13. X. Jiang; Martin, A. L.; Mortazawi, A.; "A class-B push-pull power amplifier based on an extended resonance technique," IEEE Microwave and Wireless Components Letters, Volume: 13 , Issue: 12 , Dec. 2003, Pages: 550–552.
14. Ozkar, M.; Lazzi, G.; Mortazawi, A.; "A modified unsplit PML formulation for evanescent mode absorption in waveguides," IEEE Microwave and Wireless Components Letters, Volume: 13, Issue: 6 , June 2003, Pages: 220–222.
15. Xin Jiang; Li Liu; Ortiz, S.C.; Bashirullah, R.; Mortazawi, A.; "A Ka-band power amplifier based on a low-profile slotted-waveguide power-combining/dividing circuit," IEEE Transactions on Microwave Theory and Techniques, Volume: 51 , Issue: 1, Jan. 2003, Pages: 144–147.
16. Tombak, A.; Maria, J.-P.; Ayguavives, F.T.; Zhang Jin; Stauf, G.T.; Kingon, A.I.; Mortazawi, A., "Voltage-controlled RF filters employing thin-film barium-strontium-titanate tunable capacitors," IEEE Transactions on Microwave Theory and Techniques, Volume: 51 , Issue: 2, Feb 2003, Pages: 462–467
17. Batty, W.; Christoffersen, C.E.; Yakovlev, A.B.; Whitaker, J.F.; Mortazawi, A.; Al-Zayed, A.; Ozkar, M.; Ortiz, S.C.; Reano, R.M.; Yang, K.; Katehi, L.P.B.; Snowden, C.M.; Steer, M.B.; "Global coupled EM-electrical-thermal simulation and experimental validation for a spatial power combining MMIC array," IEEE Transactions on Microwave Theory and Techniques, Volume: 50, Issue: 12, Dec. 2002, Pages: 2820–2833.
18. Tombak, A.; Maria, J.-P.; Ayguavives, F.; Zhang Jin; Stauf, G.T.; Kingon, A.I.; Mortazawi, A., "Tunable barium strontium titanate thin film capacitors for RF and microwave applications," IEEE Microwave and Wireless Components Letters, Volume: 12 , Issue: 1 , Jan. 2002, Pages: 3–5.
19. F. Ayguavives, Z. Jin, J. P. Maria, A. Tombak, A. Mortazawi, A. I. Kingon, G. T. Stauf, C. Ragaglia, J. F. Roeder and M. Brand, "Contribution of dielectric and metallic losses in RF / microwave tunable varactors using (Ba,Sr)TiO<sub>3</sub> thin films," Integrated Ferroelectrics, 39, pp. 1343-1352, 2001.