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Education

- ✓ B.A. Electrical Engineering, Birzeit University/West Bank, 1999.
- ✓ M.Sc. Microwave Engineering, Munich University of Technology/Germany, 2002.
- ✓ Ph.D. Electrical Engineering, Munich University of Technology/Germany, 2006.

Professional Experience:

- ✓ Assistant professor, UAEU, August 2011-now
- ✓ Post-Doctoral, KAUST University/KSA, 02/10- 08/11
- ✓ Research Scientist, University of Texas /USA, 01/09- 12/09
- ✓ Research and Design Engineer, LAAS-CNRS/France, 09/06-01/09
- ✓ Post-Doctoral, IEMN-CNRS/France, 10/05-09/06
- ✓ Doctoral Research, Siemens AG/Germany, 11/02-10/05
- ✓ Working student, Munich University of Technology/Germany, 10/00-10/02

Patents and patents applications:

- ✓ Patent grants entitled with "Tunable filter arrangement, e.g. for cellular telephone, has conversion unit shifting input signal band so that effective frequency range is increased with output signal extending over larger band of frequencies than input signal" German patent office, DE102004046859 (A1), April 2006.
- ✓ Patent grants entitled with "CAPACITOR WITH A VARIABLE CAPACITANCE, METHOD FOR PRODUCING THE CAPACITOR AND USE THEREOF" published as: DE102005026203, WO2006131461, US2009091874, JP2008543099 and EP1889267.
- ✓ US filed patent application: "Fully Integrated solar cell with super capacitor having common electrode on nano tube substrate", Mahmoud Al Ahmad and Ghassan Jabbour, Fully Integrated solar cell with super capacitor having common electrode on nano tube substrate Submitted 2011-06-28. (Provisional US patent).
- ✓ Apparatus and Method for Virus Detection; filed, US – Patent, 2014.
- ✓ Apparatus and Method for Energy Harvesting; filed, US – Patent, 2014.
- ✓ Thermoelectric device and method for fabrication therefore; filed, US – Patent, 2014.
- ✓ RF microalgal lipid content characterization; filed, US – Patent, 2014.
- ✓ Apparatus and method for detection and quantification of biological and chemical analytes
- ✓ Device for providing buoyancy; filed, US – Patent, 2014.
- ✓ Self-Powered Vibrational Energy Harvesting System (approved by the SRC, current status: drafting); drafting, US – Patent, 2014.
- ✓ Semiconductor Device (approved by the SRC, current status: drafting); drafting, US – Patent, 2014.

Research interest: MEMS, Material Characterization, Applied Electromagnetic, RF electronics, Microsystem, Nanotechnology and Energy Harvesting.

Publications

Journals:

1. [EXIT EXAM AS ACADEMIC PERFORMANCE INDICATOR](#); M Al Ahmad, AH Al Marzouqi, M Hussien; Turkish Online Journal of Educational Technology 13 (3), 58, 2014.
2. [RF Microalgal lipid content characterization](#); M Al Ahmad, S Al-Zuhair, H Taher, A Hilal-Alnaqbi, Scientific reports 4, Nature publisher; 2014.
3. [Piezoelectric Water Drop Energy Harvesting](#); M Al Ahmad, Journal of Electronic Materials 43 (2), 452-458, 2014.
4. [Electronically droplet energy harvesting using piezoelectric cantilevers](#); M Al Ahmad, GE Jabbour, Journal of the Electronics letters, vol. 48, no. 11, pp.: 647 – 649, 2012.
5. [Determination of maximum power transfer conditions of bimorph piezoelectric energy harvesters](#); MA Ahmad, AM Elshurafa, KN Salama, HN Alshareef, Journal of Applied Physics, vol. 111, no. 10, pp.: 2812, 2012.
6. [Energy harvesting from radio frequency propagation using piezoelectric cantilevers](#); MA Ahmad, HN Alshareef, Journal of the Solid-State Electronics, vol. 68, pp.: 13-17, 2011.
7. [Modeling of MEMS piezoelectric energy harvesters using electromagnetic and power system theories](#); MA Ahmad, AM Elshurafa, KN Salama, HN Alshareef, Journal of the Smart Materials and Structures, vol. 20, no. 8, pp.:1-6, 2011.
8. [Modeling the Power Output of Piezoelectric Energy Harvesters](#); MA Ahmad, HN Alshareef. Journal of electronic materials, Journal of Electronic Materials, vol. 40, no. 7, pp.: 1477-1484, 2011.
9. [A Capacitance-Based Methodology for the Estimation of Piezoelectric Coefficients of Poled Piezoelectric Materials](#); M Al Ahmad, HN Alshareef, Journal of the Electrochemical and Solid-State Letters, vol. 13, no. 12, pp.:108-110, 2010.
10. [Writing simple RF electronic devices on paper with carbon nanotube ink](#); M Dragoman, E Flahaut, D Dragoman, M Al Ahmad, R Plana, Journal of the Nanotechnology, vol. 20, no. 37, pp.: 1-6, 2009.
11. [Multiple negative differential resistances in crossed carbon nanotubes](#); M Al Ahmad, D Dragoman, M Dragoman, R Plana, JH Ting, FY Huang, TL Li, Journal of applied physics, vol. 105, no. 11, pp.: 4303, 2009.
12. [Macro PZT MEMS based wide-tunable coupled line resonator](#); M Al Ahmad, S Soulimane, R Plana, K van der Linden, M Riedel, Journal of the Microwave and Optical Technology Letters, vol. 51, no. 5, pp.: 1336-1338, 2009.
13. [Bandpass filter modeling employing Lorentzian distribution](#); M Al Ahmad, G Papaioannou, R Plana, P Russer, Journal of the Microwave and Optical Technology Letters, vol. 51, no. 5, pp.: 1167-1169, 2009.
14. [Modeling and characterization of smart LSMO ferromagnetic thin-film tunable resistance](#); M Al Ahmad, R Plana, CI Cheon, EJ Yun, Journal of the IEEE Transactions on Electron Devices, vol. 56, no. 4, pp.: 665-671, 2009.
15. [Piezoelectric Coefficients of Thin Film Aluminum Nitride Characterizations Using Capacitance Measurements](#); M Al Ahmad, R Plana, Journal of the IEEE Microwave and Wireless Components Letters, vol. 19, no. 3, pp.:140-142, 2009.
16. [Vertical displacement detection of an aluminum nitride piezoelectric thin film using capacitance measurements](#); M Al Ahmad, R Plana, Journal of the International Journal of Microwave and Wireless Technologies, vol. 1, no. 01, pp.:5-9, 2009.
17. [Tunable LaSrMnO₃ \(LSMO\) Ferromagnetic Thin Films for Radio Frequency Applications](#); M Al Ahmad, YT Lee, CI Cheon, EJ Yun, R Plana, Journal of the IEEE Microwave and Wireless Components Letters, vol. 19, no. 1, pp.: 36-38, 2009.

18. [Modeling of Lanthanum Strontium Manganite Ferromagnetic Thin Film Material Tunable Resistance](#): M Al Ahmad, EJ Yun, R Plana, Journal of the IEEE Electron Device Letters, vol. 29, no. 12, pp.:1296-1298, 2008.
19. [RF MEMS status and perspectives](#): F Coccetti, D Peyrou, M Al Ahmad, V Puyal, P Pons, H Aubert, A Muller, M, Journal of the physica status solidi (c), vol. 5, no. 12, pp.: 3822-3827, 2008.
20. [Design to improve the capacitive contact quality in piezoelectric actuation](#): H Achkar, D Peyrou, F Pennec, M Al Ahmad, P Pons, R Plana, Journal of the physica status solidi (c), vol. 5, no. 12, pp.:3858-3861, 2008.
21. [Investigations of Indium Tin Oxide—Barium Strontium Titanate—Indium Tin Oxide Heterostructure for Tunability](#): M Al Ahmad, L Salvagnac, D Michau, M Maglione, R Plana, Journal of the IEEE Microwave and Wireless Components Letters, vol. 18, no. 6, pp.: 398-400, 2008.
22. [Wide-tunable low-field interdigitated barium strontium titanate capacitors](#): M Al Ahmad, M Brunet, S Payan, D Michau, M Maglione, R Plana, Journal of the IEEE Microwave and Wireless Components Letters, vol. 17, no. 11, pp.: 769-771, 2007.

Conference papers:

23. [RF Capacitive Piezoelectric Displacement Extraction](#): Mahmoud Al Ahmad, ICST2013, New Zealand.
24. [Exit Exam as Academic Indicator](#): Mahmoud Al Ahmad and Ali Al Marzouqi, to be presented ICEEE, Todz, Poland, 2013.
25. [Piezoelectric energy droplet harvesting and modeling](#): T Alkhaddeim, B AlShujaa, W AlBeiey, F AlNeyadi, MA Ahmad, IEEE Sensors conference, vol. 1, pp.: 1-4, Taipei/Taiwan, 2012.
26. [RF devices written with carbon nanotube ink on paper](#): M Dragoman, D Dragoman, M Al Ahmad, R Plana, E Flahaut, European Microwave Conference, vol. 1, pp.: 575-577, Rome/Italy, 2009.
27. [Design of carbon nanotubes based microwave applications employing mechanical resonance analysis](#): M Al Ahmad, WI Milne, R Plana, International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Micro-Systems, vol. 1, pp.:1-4 , Freiburg/Germany, 2008.
28. [Thermo-electro-mechanical V-shaped actuator design and simulations](#): M Matmat, M Al Ahmad, C Escriba, S Soulimane, A Marty, J Fourniols, International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Micro-Systems, vol. 1, pp.:1-4 , Freiburg/Germany, 2008.
29. [Tunability of Ferromagnetic \(La, Sr\) MnO₃ \(LSMO\) Thin Films for Microwave Applications](#): M Al Ahmad, EJ Yun, CI Cheon, R Plana, European Microwave Conference, vol. 1, pp.: 1296-1299, Amsterdam/Nederland, 2008.
30. [Modeling of smart compliant electro-active polymer actuator](#): S Soulimane, M Al Ahmad, M Matmat, H Camon, International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Micro-Systems, vol. 1, pp.:1-4 , Freiburg/Germany, 2008.
31. [Tuning of Barium Strontium Titanate \(BST\) Thin Film Materials Employing High Resistive Thin Indium Tin Oxide \(ITO\) Layer](#): M Al Ahmad, S Payan, D Michau, M Maglione, R Plana, European Microwave Conference, vol. 1, pp.: 809-812, Amsterdam/Nederland, 2008.
32. [Losses Characterization of Tunable Barium Strontium Titanate Materials Integrated on Silicon Substrate](#): M Al Ahmad, R Plana, IEEE Silicon Monolithic Integrated Circuits in RF Systems, vol. 1, pp.:159-162, Orlando/US, 2008.
33. [Tunable Thin Film Integrated Material Characterizations for Microwave Applications](#): M Al Ahmad, S Payan, D Michau, M Maglione, R Plana, MRS Proceedings, vol. 1075, San Francisco/US, 2008.
34. [Piezoelectric Materials for Advanced Integrated RF Components](#): M Al Ahmad, F Coccetti, R Plana, MRS Proceedings, vol. 1075, San Francisco/US, 2008.
35. [RF Nanoelectromechanical switch employing nanowires](#): M Al Ahmad, S Habtoun, C Bergaud, M Dilhan, D Bourrier, R Plana, International Semiconductor Device Research Symposium, vol. 1, pp.: 1-2, Maryland/US, 2007.

36. [Metallic multiwalled carbon nanotubes for microwave applications](#): M Al Ahmad, A Tahraoui, WI Milne, R Plana, International Semiconductor Device Research Symposium, vol. 1, pp.: 1-2, Maryland/US, 2007.
37. [Piezoelectric Thin Films Characterization for MEMS Applications](#): M Al Ahmad, R Plana, Asia-Pacific Microwave Conference, vol. 1, pp.:1-4, Bangkok/Thailand, 2007.
38. [The Effect of Substrate Clamping on Piezoelectric Thin-Film Parameters](#): M Al Ahmad, F Coccetti, R Plana, Asia-Pacific Microwave Conference, vol. 1, pp.:1-4, Bangkok/Thailand, 2007.
39. [Tunable low-field interdigitated barium strontium titanate capacitors](#): M Al Ahmad, G Leclerc, M Brunet, N Mauran, L Bary, R Plana, S Payan, Asia-Pacific Microwave Conference, vol. 1, pp.:1-4, Bangkok/Thailand, 2007.
40. [TCADMEMS Overview](#): D Peyrou, I Achkar, F Pennec, F Coccetti, M Al Ahmad, P Pons, R Plana, International Semiconductor Conference, vol. 1, pp.: 21-24, Sinaia, 2007.
41. [Material depolarization, dielectric hysteresis and power consumption investigations on tunable piezoelectric-based shunt microstrip resonator](#): M Al-Ahmad, R Plana, European Microwave Conference, vol. 1, pp.: 294-297, Munich/Germany, 2007.
42. [Advanced hybrid packaged piezoelectric actuated MEMS-based tunable voltage controlled oscillator](#): M Al-Ahmad, C Loyez, N Rolland, R Plana, PA Rolland, European Microwave Conference, vol. 1, pp.: 294-297, Munich/Germany, 2007.
43. [A novel method for PZT thin film piezoelectric coefficients determination using conventional impedance analyzer](#): M Al-Ahmad, R Plana, European Microwave Conference, vol. 1, pp.: 294-297, Munich/Germany, 2007.
44. [0.8 GHz to 2.4 GHz tunable ceramic microwave bandpass filters](#): M Al-Ahmad, R Matz, P Russer, IEEE/MTT-S International Microwave Symposium, vol. 1, pp.: 1615-1618, Honolulu/Hawaii, 2007.
45. [Validation of simulation platform by comparing results and calculation time of different softwares](#): H Achkar, F Pennec, D Peyrou, M Al Ahmad, M Sartor, R Plana, P Pons, International Conference on Thermal, Mechanical and Multi-Physics Simulation Experiments in Microelectronics and Micro-Systems, vol. 1, pp.: 1-5, London/UK, 2007.
46. [Wide BST-based tuning of voltage controlled oscillator](#): M Al-Ahmad, C Loyez, N Rolland, PA Rolland, Asia-Pacific Microwave Conference, vol. 1, pp.: 468-471, Yokohama/Japan, 2006.
47. [Piezoelectric-based tunable microstrip shunt resonator](#): M Al-Ahmad, N Rolland, PA Rolland, Asia-Pacific Microwave Conference, vol. 1, pp.: 653-656, Yokohama/Japan, 2006.
48. [Piezoelectric Tuned LTCC Bandpass Filters](#): M Al-Ahmad, R Matz, P Russer, IEEE MTT-S International Microwave Symposium Digest, vol. 1, pp.:764-767, San Francisco/US, 2006.
49. [A piezoelectric tuned combline filter](#): M Al Ahmad, R Maenner, R Matz, P Russer, European Microwave Conference, vol. 1, pp. 1-4, Paris/France, 2005.
50. [Wide piezoelectric tuning of LTCC bandpass filters](#): M Al-Ahmad, R Maenner, R Matz, P Russer, Microwave IEEE MTT-S International Symposium Digest, vol. 1, pp.: 1-4, Long Beach/US, 2005.
51. [Parametric Model Generation Algorithm for Planar Microwave Structures based on Full-Wave analysis and Design of Experiment](#), M. Al-Ahmad, F. Coccetti, M. Tentzeris and P. Russer, Proc. of the 2003 ACES Conference, Monterey/US, 2003.

Technical Skill-set & community services:

- ✓ **Member** of the Editorial Board of Nature Scientific Report Journal.
- ✓ **Guest editor** of the “International Journal of Microwave and Wireless Technologies” special issues devoted to Piezoelectric materials and microwave applications, Cambridge University Press, 15 May 2009.
- ✓ **Chair**: Poster session, EuMC2009, Rome/Italy.

- ✓ **Organizer:** Design your own Microsystems, three training course, and microBUILDER Microfluidic Microsystems Manufacturing Cluster 2007, Toulouse/France.
- ✓ **College of Engineering representative** in training exams, Fall 2011, Spring 2012, Fall 2012, Spring 2013.
- ✓ **College of Engineering representative** in graduation project exams, Fall 2011, Spring 2012, Fall 2012, Spring 2013.
- ✓ **Member of the organizing committee** of the 3rd Engineering Students Renewable Energy Competition 2012.
- ✓ **Member of the screening committee** of faculty position in microelectronics, Spring 2012, Spring 2013.
- ✓ **Member of the organizing committee** of the Future UAE Energy and Environment Leaders, Spring 2012.
- ✓ **Member of the exit exam committee**, Fall 2011, Spring 2012, Fall 2012, Spring 2013.
- ✓ **Graduation project coordinator**, Spring 2012, Fall 2012, Spring 2013, Fall 2013.
- ✓ **Member of the Proctoring exam committee**, Fall 2011.
- ✓ **Member of the Editorial board** of the Emirates Journal for Engineering Research.
- ✓ **Textbook coordinators** of the Electrical Engineering department, AY 2011/2012 and 2012/2013.
- ✓ **Senior IEEE member.**
- ✓ More than **140 citations** with **h-index of 7**.
- ✓ **Acting reviewer** for the Journal of the Integrated Ferroelectrics, Journal of the IEEE Microwave and Components Letters, Journal of the IEEE Trans. of Microwave Theory and Techniques, Journal of the IEEE Transactions on Advanced Packaging, European Microwave Weeks, Journal of Progress In Electromagnetics Research (PIER), Journal of Materials Science, Journal of Materials Science and Engineering B, Journal of Applied Physics Letters, Journal of Microwave Magazine, Journal of Electronic Materials, Journal of IEEE Electron Device Letters,
- ✓ **Keynote presentation** entitled with "Design of Carbon Nanotubes based Microwave Applications Employing Mechanical Resonance Analysis", IEEE International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics & Microsystems, April 2008.
- ✓ **Invited talk**, IEEE Electron Device Chapter, Texas/US "Modeling and Characterization of Smart LSMO Ferromagnetic Thin-Film Tunable Resistance", August 2009.
- ✓ **Invited talk** entitled with "RF MEMS: Status and Perspectives" presented at the Micro & Nano Conferences, Athens-Greece, 2007.
- ✓ **Invited talk** entitled with "RF MEMS: Status and Perspectives" presented at the Micro & Nano Conferences, Athens-Greece, 2007.
- ✓ **Invited talk** entitled with "MEMS/NEMS technologies for ambient intelligence", Electronics' 2007, Sozopol/Bulgaria, September 2007.
- ✓ **Invited talk** entitled with "TCADMEMS Overview" at the 2007 International Semiconductor Conference. CAS 2007, Sinaia/Romania, October 2007.
- ✓ **Invited paper**, "RF MEMS: status and perspectives", Journal of Physica Status Solidi C, Vol.5, N°12, pp.: 3822-3827, November 2008.
- ✓ **Invited paper and Invited talk** entitled with "Piezoelectric Materials for Advanced Integrated RF Components", MRS 2008, *J3.1, San Francisco, March 2008.
- ✓ **Co-Supervision** of different PhD and M.Sc. thesis at different universities and research centers.
- ✓ **Word tuning record** in tunable ceramic band passes filters, Siemens AG, Munich/Germany, May 2005.

Approved Grants @ UAEU:

- 1) NRF U-IRCA 2011Award, "[Nano Lab on a Chip for Virus Detection](#)". (150K AED, ongoing)
- 2) SQU-UAEU Award, "[Nano Enhanced Supercapacitor for Energy Storage \(NESES\)](#)". (400K AED, ongoing)
- 3) Award ATIC SRC center, "[Integrated Thermal and Vibration Energy Harvesters with Efficient Power Management Unit for Low Power SOC](#)". (600K \$/3years, ongoing)
- 4) Award ATIC SRC center, Co PI, "[Self-powered Multi-purpose Flexible and Wearable ZnO-based Sensors](#)". (600K \$/3years, ongoing)

- 5) Awarded ICT Fund grants, "[Green Self-Powered Low Power Regulated Sensor Circuit](#)". (2,538,417 AED/2years)
- 6) Collage Seed fund, "[RF Capacitive Piezoelectric Displacement Extraction](#) ", (30K AED/Year)

Updated in 4th of October 2014