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EDUCATION:

Georgia Institute of Technology, Atlanta, GA	Electrical Engineering	Ph.D.,	2006
Thesis Title: High Frequency Capacitive Single Crystal Silicon Resonators and Coupled Resonator Systems			
Georgia Institute of Technology, Atlanta, GA	Electrical Engineering	M.S.,	2004
Thesis Title: Electrically Couple MEMS Bandpass Filters			
Sharif University of Technology, Tehran, Iran	Electrical Engineering	B.S.,	2001

APPOINTMENTS:

Aug. 2012- present	Associate Professor, Department of Electrical Engineering, University of Texas at Dallas
Sep. 2011-present	Founder and CTO, femtoScale, Inc., Denver, CO
Sep. 2006 – July 2012	Assistant Professor, Department of Electrical and Computer Engineering, Joint Appointment, Department of Mechanical and Materials Engineering (since Sep. 2007), University of Denver
Aug. 2001 – Aug. 2006	Graduate Research Assistant, Microelectronics Research Center, Georgia Institute of Technology

HONORS AND AWARDS:

1. National Science Foundation Faculty Early Career Development (CAREER) Award, 2011
2. Best Junior Scholar Award, School of Engineering and Computer Science, University of Denver, 2008
3. ECE Research Assistant Excellence Award, Georgia Institute of Technology, 2006
4. Sigma-Xi best M.S. thesis award, Georgia Institute of Technology, 2005
5. Silver medal, 29th International Chemistry Olympiad (ICHO), 1997
6. Gold medal, 6th Iranian National Chemistry Olympiad, 1996

PROFESSIONAL ASSOCIATION

IEEE Member Since 2002

JOURNAL PUBLICATIONS:

27. E. Mehdizadeh and S. Pourkamali, "Deep Submicron Parallel Scanning Probe Lithography using Two DOF MEMS Actuators with Integrated Nano-Tips," Submitted to Micro & Nano Letters.

26. E. Mehdizadeh, M. Rostami, X. Guo, and S. Pourkamali, "Atomic Resolution Disk Resonant Force and Displacement Sensors for Measurements in Liquid," IEEE Electron Device Letters, In Press.
24. E. Mehdizadeh, A. Rahafrooz, and S. Pourkamali, "Self-Controlled Fabrication of Single-Crystalline Silicon Nanobeams using Conventional Micromachining," Nanotechnology, In Press.
25. E. Mehdizadeh, J. Chapin, J. Gonzales, R. Abdolvand, B. Purse, and S. Pourkamali, "Piezoelectric Rotational Mode Disk Resonant Sensors for Label-Free Direct Detection of Biomolecules in Liquid Media," Sensors and Actuators A: Physical, vol. 216, pp. 136–141, September 2014.
23. E. Mehdizadeh, V.Kumar, S. Pourkamali, "Sensitivity Enhancement of Lorentz Force MEMS Resonant Magnetometers via Internal Thermal-Piezoresistive Amplification," Electron Device Letters, Vol. 35, No. 2, February 2014.
22. A. Hajjam, and S. Pourkamali, "Self-Contained Frequency Trimming of Micromachined Silicon Resonators via Localized Thermal Oxidation," IEEE Journal of Micro-electro-mechanical systems (JMEMS), Vol. 22, Issue 5, Oct. 2013, pp. 1066 - 1072..
21. X. Guo, Y.-B. Yi, and S. Pourkamali, "A finite element analysis of thermoelastic damping in vented MEMS beam resonators," Elsevier International Journal of Mechanical Sciences, 74 (2013), pp. 73–82.
20. X. Guo, E. Mehdizadeh, Y. Yi, and S. Pourkamali, "Thermal-Piezoresistive Resonators and Self-Sustained Oscillators for Gas Recognition and Pressure Sensing," IEEE Sensors Journal, Vol. 13, No. 8, August 2013, pp. 2863-2872.
19. H. Hall, A. Rahafrooz, J. Brown, V. Bright, and S. Pourkamali, "I-shaped thermally actuated VHF resonators with submicron components," Elsevier Journal of Sensors and Actuators A: Physical, Vol. 195, June 2013, pp. 160-166.
18. A. Rahafrooz, and S. Pourkamali, "Thermal-piezoresistive energy pumps in micromechanical resonant structures," IEEE Transactions on Electron Devices, Vol. 59, issue 12, 2012 , pp. 3587–3593.
17. A. Hajjam, and S. Pourkamali, "Fabrication and characterization of high frequency MEMS-based resonant organic gas sensors," IEEE Sensors Journal, vol. 12, Issue 6, 2012, pp. 1958-1964.
16. A. Hajjam, A. Logan, and S. Pourkamali, "Temperature compensation of thermally actuated micromechanical resonators via doping and bias current optimization," EEE Journal of Micro-Electro-Mechanical-Systems, Vol. 21, Issue 3, 2012, pp. 681-687.
15. A. Hajjam, J. C. Wilson, and S. Pourkamali, "Individual air-borne particle mass measurement using high frequency micromechanical resonators," IEEE Sensors Journal, Vol. 11, Issue 11, 2011, pp. 2883-2890.
14. A. Rahafrooz, and S. Pourkamali, "High frequency thermally actuated electromechanical resonators with piezoresistive readout," IEEE Transactions on Electron Devices, Vol. 58, Issue 4, 2011, pp. 1205-1214.
13. A. Hajjam, J. C. Wilson, A. Rahafrooz, and S. Pourkamali, "Fabrication and characterization of thermally actuated micromechanical resonators for airborne particle mass sensing, part II: device fabrication and characterization," Journal of Micromechanics and Microengineering (JMM), 20 (2010) 125019.
12. A. Rahafrooz, and S. Pourkamali, "Fabrication and characterization of thermally actuated micromechanical resonators for airborne particle mass sensing, part I: resonator design and modeling," Journal of Micromechanics and Microengineering (JMM), 20 (2010) 125018.
11. G. K. Ho, K. Sundaresan, S. Pourkamali, and F. Ayazi, "Micromechanical IBARS: tunable high-*Q* resonators for temperature-compensated reference oscillators," Journal of Micro-Electro-Mechanical-Systems, Vol. 19, Issue 3, June 2010, pp. 503-515.

10. A. Rahafrooz, and S. Pourkamali, "Detection of sub-ppm traces of aqueous heavy-metal ions using micro-electro-mechanical beam resonators," Journal of Micromechanics and Microengineering (JMM), 19 (2009) 115003.
9. Y. Yi, A. Rahafrooz, and S. Pourkamali, "Analysis of the collective effects of thermoelastic and fluid damping on silicon beam resonators," Journal of Micro/Nanolithography, MEMS, and MOEMS (JM3), Vol. 8, Issue: 2, 2009.
8. S. Pourkamali, G. K. Ho and F. Ayazi, "Low-impedance VHF and UHF capacitive silicon bulk acoustic wave resonators, Part I: concept and fabrication," IEEE Transactions on Electron Devices, Vol. 54, No. 8, August 2007, pp. 2017-2023.
7. S. Pourkamali, G. K. Ho and F. Ayazi, "Low-impedance VHF and UHF capacitive silicon bulk acoustic wave resonators, Part II: measurement and characterization," IEEE Transactions on Electron Devices, Vol. 54, No. 8, August 2007, pp. 2024-2030.
6. K. Sundaresan, G.K. Ho, S. Pourkamali, and F. Ayazi, "Electronically temperature compenstated silicon bulk acoustic resonator reference oscillator," IEEE Journal of Solid State Circuits, Vol. 42, No. 6, June 2007, pp. 1425-1434.
5. S. Pourkamali and F. Ayazi, "Electrically coupled MEMS bandpass filters-Part I: with coupling element," Journal of Sensors and Actuators A 122, 2005, pp.307-316.
4. S. Pourkamali and F. Ayazi, "Electrically coupled MEMS bandpass filters-Part II: without coupling element," Journal of Sensors and Actuators A 122, 2005, pp.317-325.
3. S. Pourkamali, Z. Hao and F. Ayazi, "VHF single crystal silicon side supported disk resonators-Part II: implementation and characterization," Journal of Micro Electro Mechanical Systems, Vol. 13, Issue 6, December 2004, pp. 1054-1062.
2. Z. Hao, S. Pourkamali and F. Ayazi, "VHF single crystal silicon side supported disk resonators-Part I: Design and Modeling," Journal of Micro Electro Mechanical Systems, Vol. 13, Issue 6, December 2004, pp. 1043-1053.
1. S. Pourkamali, A. Hashimura, R. Abdolvand, G. K. Ho, A. Erbil, F. Ayazi, "High-Q single crystal silicon HARPSS capacitive beam resonators with self-aligned sub-100nm transduction gaps," Journal of Micro Electro Mechanical Systems, Vol. 12, Issue 4, August 2003, pp. 487-496.

REFEREED CONFERENCE PUBLICATIONS

74. E. Mehdizadeh, V. Kumar, and S. Pourkamali, "High-Q Lorentz Force MEMS Magnetometer with Internal Self-Amplification," To be presented at 2014 IEEE Sensors.
73. X. Guo, E. Mehdizadeh, A. Ramezany, and S. Pourkamali, "An Ultra High-Q Micromechanical In-plane Tuning Fork," To be presented at 2014 IEEE Sensors.
72. M. Mahdavi, Reza Abolvand, and S. Pourkamali, "Piezoelectric Resonant MEMS Balances with High Liquid Phase Q," To be presented at 2014 IEEE Sensors.
71. E. Mehdizadeh, M. Rostami, X. Guo and S. Pourkamali, "High resolution force and displacement measurements using self-sustained MEMS oscillators," Hilton Head Workshop, 2014.
70. A. Ramezany, M. Mahdavi, X. Guo, and S. Pourkamali, "Resonant M/NEMS Piezoresistors for Narrow-Band Electronic Amplification," Hilton Head Workshop, 2014.
69. E. Mehdizadeh, V. Kumar, and S. Pourkamali, "Characterization of a Nanoparticle Collector with Embedded MEMS-Based Mass Monitors," IEEE NEMS, Waikiki Beach, Hawaii, USA, April 2014.
68. E. Mehdizadeh and S. Pourkamali, "High Throughput Deep Submicron Scanning Probe Lithography using Two DOF MEMS Actuators with Integrated Nano-Tips," IEEE NEMS, Waikiki Beach, Hawaii, USA, April 2014.

67. H.J. Hall, L. Wang, J.S. Bunch, S. Pourkamali, and V.M. Bright, "Optical control and tuning of thermal-piezoresistive self-sustained oscillators," IEEE MEMS Conference, 2014.
66. E. Mehdizadeh, V. Kumar, J. Gonzales, R. Abdolvand, and S. Pourkamali, "A two-stage aerosol impactor with embedded MEMS resonant mass balances for particulate size segregation and mass concentration monitoring," proceedings, IEEE Sensors Conference, 2013.
65. E. Mehdizadeh, A. Hajjam, A. Rahafrooz and S. Pourkamali, "Nano-precision force and displacement measurement using MEMS resonant structures," proceedings, IEEE Sensors Conference, 2013.
64. E. Mehdizadeh and S. Pourkamali, "Two Degrees-Of-Freedom Thermally Actuated Nano-Positioner with Integrated Nano-Tips For Scanning Probe Nanolithography," Proceedings of Nanomechanical Sensing Workshop, 2013.
63. A. Iqbal, J. Chapin, E. Mehdizadeh, B. Purse, and S. Pourkamali, "Resonant response validation of micro-channel encapsulated disk resonators via fluorescent imaging," International Conference on Microtechnologies in Medicine and Biology, 2013.
62. E. Mehdizadeh, J. Chapin, J. Gonzales, R. Abdolvand, B. Purse, and S. Pourkamali, "Response characterization of piezoelectric rotational mode disk Resonant biomolecular Sensors," International Conference on Microtechnologies in Medicine and Biology, 2013.
61. E. Mehdizadeh, J. C. Wilson, A. Hajjam, A. Rahafrooz, and S. Pourkamali, "Aerosol Impactor with Embedded MEMS Resonant Mass Balance for Real-Time Particulate Mass Concentration Monitoring," International Conference on Solid State Sensors, Actuators, and Microsystems (Transducers), 2013.
60. H. J. Hall, D.E. Walker, L. Wang, R.C. Fitch, J.S. Bunch, S. Pourkamali, and V.M. Bright, "Mode Selection Behavior of VHF Thermal-Piezoresistive Self-Sustained Oscillators," International Conference on Solid State Sensors, Actuators, and Microsystems (Transducers), 2013.
59. A. Iqbal, J. Chapin, E. Mehdizadeh, A. Rahafrooz, B. Purse, S. Pourkamali, "Real-Time Bio-Sensing Using Micro-Channel Encapsulated Thermal-Piezoresistive Rotational Mode Disk Resonators," IEEE Sensors Conference, 2012.
58. X. Li, A. Rahafrooz, S. Pourkamali, "Fabrication and Characterization of Miniaturized Photo-Electro-Chemical Solar Cells," IEEE Sensors Conference, 2012.
57. E. Mehdizadeh, J. Chapin, J. Gonzales, A. Rahafrooz, B. Purse, R. Abdolvand, and S. Pourkamali, "Direct Detection of Biomolecules in Liquid Media Using Piezoelectric Rotational Mode Disk Resonators," IEEE Sensors Conference, 2012.
56. A. Hajjam, Y. Guo, K. Dietrich, S. Pourkamali, "MEMS Resonant Human Breath Sensors for Survivor Detection in Disaster Areas," IEEE Sensors Conference, 2012.
55. X. Guo, A. Rahafrooz, Y. Yi, and S. Pourkamali, "Self-Sustained Micromechanical Resonant Pressure Sensors," IEEE Sensors Conference, 2012.***Invited for submission as a journal paper to the IEEE sensors special issue.***
54. A. Hajjam, A. Rahafrooz, and S. Pourkamali, "A self-controlled frequency trimming technique for micromechanical resonators," Hilton Head 2012, solid-state sensor, actuator and Microsystems workshop.
53. E. Mehdizadeh, J. Gonzales, A. Rahafrooz, R. Abdolvand, and S. Pourkamali, "Piezoelectric rotational mode disk resonators for liquid viscosity monitoring," Hilton Head 2012, solid-state sensor, actuator and Microsystems workshop.
52. A. Rahafrooz, and S. Pourkamali, "Zero bias operation of thermal-piezoresistive micromechanical resonators via internal electromechanical mixing," Hilton Head 2012, solid-state sensor, actuator and Microsystems workshop.
51. A. Rahafrooz, and S. Pourkamali, "Jitter Characterization of Fully-Micromechanical Thermal-Piezoresistive Oscillators," IEEE International Frequency Control Symposium, 2012.

50. X. Guo, A. Rahafrooz, Y-B Yi, S. Pourkamali, "Gas Sensing Using Thermally Actuated Dual Plate Resonators and Oscillators," IEEE International Frequency Control Symposium, 2012.
49. A. Hajjam, A. Rahafrooz, and S. Pourkamali, "Electrostatic frequency tuning and Q-improvement of in-plane dual-plate MEMS resonators," IEEE International Frequency Control Symposium, 2012.
48. A. Hajjam, A. Rahafrooz, and S. Pourkamali, "Input-output insulation in thermal-piezoresisitive resonant microsctructures using embedded oxide beams," IEEE International Frequency Control Symposium, 2012.
47. A. Hajjam, A. Rahafrooz, and S. Pourkamali, "Localized thermal oxidation for frequency trimming and temperature compensation of micromechanical resonators," IEEE MEMS 2012.
46. H. Hall, A. Rahafrooz, J. Brown, V. Bright, and S. Pourkamali, "Thermally actuated I-shaped electromechanical VHF resonators," IEEE MEMS 2012.
45. B. Tousifar, A. Rahafrooz, and S. Pourkamali, "Hydrogen detection using thermally actuated MEMS resonators," proceedings, IEEE Sensors Conference, 2011.
44. A. Hajjam, A. Logan, and S. Pourkamali, "Fabrication and characterization of MEMS-based resonant organic gas sniffers," proceedings, IEEE Sensors Conference, 2011.
43. B. Tousifar, W. Douglas, and S. Pourkamali, "Developing a Fully Cycled Silicon Cathode-Zinc Electrolyte Based Solar Cell Using Copper Recovery Electrodes," 37th IEEE Photovoltaic Specialists Conference (PVSC), 2011.
42. B. Tousifar, M. Kvasnika, B. Purse, and S. Pourkamali, "Surface functionalization and monolayer formation on silicon resonant nanobalances," 2011 IEEE International Frequency Control Symposium (IFCS 2011). ***Nominated for Best Student Paper Award***
41. A. Rahafrooz, and S. Pourkamali, "High Frequency Dual-Mode Thermal-Piezoresistive Oscillators," 2011 IEEE International Frequency Control Symposium (IFCS 2011).
40. A. Rahafrooz, and S. Pourkamali, "Characterization of Rotational Mode Disk Resonator Quality Factors in Liquid," 2011 IEEE International Frequency Control Symposium (IFCS 2011).
39. A. Hajjam, A. Logan, J. Pandiyan, and S. Pourkamali, "High Frequency Thermal-Piezoresistive MEMS Resonators for Detection of Organic Gases" 2011 IEEE International Frequency Control Symposium (IFCS 2011).
38. G. K. Ho, S. Pourkamali, and F. Ayazi, "Bulk modes in single-crystal silicon" 2011 IEEE International Frequency Control Symposium (IFCS 2011).
37. A. Rahafrooz, S. Pourkamali, "Active self-Q-enhancement in high frequency thermally actuated M/NEMS resonators," proceedings, IEEE MEMS conference, 2011.
36. A. Rahafrooz, S. Pourkamali, "Controlled batch fabrication of crystalline silicon nanobeam-based resonant structures," proceedings, IEEE MEMS conference, 2011.
35. A. Hajjam, A. Rahafrooz, S. Pourkamali, "Temperature compensated single-device electromechanical oscillators," proceedings, IEEE MEMS conference, 2011.
34. A. Hajjam, J. Wilson, A. Rahafrooz, and S.Pourkamali, "Self-sustained micromechanical resonant particlute microbalance/counters," proceedings, IEEE MEMS conference, 2011.
33. A. Hajjam, A. Rahafrooz, and S. Pourkamali, "Sub-100ppb/ºC Temperature Stability in Thermally Actuated High Frequency Silicon Resonators via Degenerate Phosphorous Doping and Bias Current Optimization," proceedings, IEEE International Electron Device Meeting (IEDM), 2010.
32. A. Rahafrooz, and S. Pourkamali, "Fully Micromechanical Piezo-Thermal Oscillators," IEEE International Electron Device Meeting (IEDM), 2010. ***Nominated for Best Student Paper Award***
31. A. Rahafrooz, and S. Pourkamali, "Rotational Mode Disk Resonators for High-Q Operation in Liquid," IEEE Sensors Conference, 2010.

30. A. Hajjam, J. Pandiyan, A. Rahafrooz, and S. Pourkamali, "MEMS Resonant Sensors for Detection of Gasoline Vapor," IEEE Sensors Conference, 2010.
29. A. Hajjam, J. Wilson, A. Rahafrooz, and S. Pourkamali, "Detection and Mass Measurement of Individual Air-Borne Particles Using High Frequency Micromechanical Resonators," IEEE Sensors Conference, 2010.
28. A. Rahafrooz, and S. Pourkamali, "Thermo-electro-mechanical modeling of high frequency thermally actuated I^2-BAR resonators," Hilton Head 2010, solid-state sensor, actuator and Microsystems workshop.
27. B. Tousifar, and S. Pourkamali, "Characterization of a very low-cost silicon cathode-zinc electrolyte solar cell," 36th IEEE Photovoltaic Specialists Conference (PVSC), 2010.
26. B. Harrington, A. Hajjam, J. C. Wilson, S. Pourkamali, R. Abdolvand, "Thin-film piezoelectric-on-silicon particle mass sensors," IEEE international Frequency Control Symposium (IFCS), 2010.
25. A. Rahafrooz, A. Hajjam, B. Tousifar, S. Pourkamali, "Thermal actuation, a suitable mechanism for high-frequency electromechanical resonators," proceedings, IEEE MEMS conference, 2010, pp. 200-203.
24. A. Hajjam, J. C. Wilson, A. Rahafrooz and S. Pourkamali, "Fabrication and characterization of resonant aerosol particle mass sensors," proceedings, IEEE MEMS conference, 2010, pp. 863-866.
23. A. Hajjam, A. Rahafrooz, J. C. Wilson, and S. Pourkamali, "Thermally actuated MEMS resonant sensors for mass measurement of micro/nanoscale aerosol particles," proceedings, IEEE Sensors Conference, 2009, pp. 707-710.
22. A. Rahafrooz, A. Hajjam, and S. Pourkamali, "Thermal actuation of high frequency micromechanical resonators," IEEE SOI conference, 2009.
21. A. Rahafrooz, S. Pourkamali, "Resonant MEMS sensors for detection of aqueous heavy metal ions with sub-ppm resolution," Proceedings, IEEE Electron Devices and Solid-State Circuits Conference, 2008.
20. S. Pourkamali, and F. Ayazi, "Wafer-Level Encapsulation and Sealing of Electrostatic HARPSS Transducers," Proceedings, IEEE Sensors, 2007.
19. Qishu Qin, Siavash Pourkamali, and Farrokh Ayazi, "Capacitively Coupled VHF Silicon Bulk Acoustic Wave Filters," proceedings, 2007 International Ultrasonics Symposium, pp1649-1652.
18. F. Ayazi, S. Pourkamali, G. K. Ho and R. Abdolvand, "High-aspect-ratio SOI vibrating micromechanical resonators and filters," invited paper, proceedings, International Microwave Symposium, 2006 (IMS'06), pp. 676-679.
17. K. Sundaresan, G. K. Ho, S. Pourkamali and F. Ayazi, "A low phase noise 100MHz silicon BAW reference oscillator," proceedings, Custom Integrated Circuit Conference, 2006 (CICC'06).
16. S. Pourkamali and F. Ayazi, "High frequency low impedance silicon BAR structures," Proceedings, Hilton Head 2006, solid-state sensor, actuator and Microsystems workshop, pp. 284-287.
15. G.K. Ho, K. Sundaresan, S. Pourkamali and F. Ayazi, "Temperature compensated IBAR reference oscillators," proceeding, MEMS'06, pp. 910-913.
14. S. Pourkamali, G. K. Ho and F. Ayazi, "Vertical Capacitive SiBARs," proceedings, MEMS'05, pp. 211-214.
13. G.K. Ho, K. Sundaresan, S. Pourkamali and F. Ayazi, "Low impedance, highly tunable, I2-resonators for temperature compensated reference oscillators," proceedings, MEMS'05, pp. 116-120.
12. K. Sundaresan, G.K. Ho, S. Pourkamali and F. Ayazi, "A 2-chip micro-electro-mechanical reference oscillator," proceedings, ISCAS'05, pp. 5461-5464.
11. Z. Hao, S. Pourkamali and F. Ayazi, "Longitudinal block resonators for detecting mass variation at single molecule sensitivity," the 5th Georgia Tech Conf. on Nanoscience and Nanotech., Nov. 2004.

10. S. Pourkamali and F. Ayazi, "High frequency capacitive micromechanical resonators with reduced motional resistance using the HARPSS technology," 5th Silicon RF topical meeting 2004, pp. 147-150.
9. S. Pourkamali and F. Ayazi, "18μm thick high frequency capacitive HARPSS resonators with reduced motional resistance," proceedings, Hilton Head 2004, solid-state sensor, actuator and Microsystems workshop, pp. 392-393.
8. B. Vakili, S. Pourkamali and F. Ayazi, "A new input switching scheme for a capacitive micro-g accelerometer," proceedings, Symposium on VLSI Circuits, 2004, pp. 310 – 313.
7. B. Vakili, S. Pourkamali, and F. Ayazi, "A 2.5V 14-bit sigma-delta CMOS_SOI capacitive accelerometer," Digest of technical papers, ISSCC'04, pp. 314-315.
6. S. Pourkamali, and F. Ayazi, "Fully single crystal silicon resonators with deep-submicron dry-etched transducer gaps," proceedings, MEMS'04, pp. 813-816.
5. S. Pourkamali, R. Abdolvand, G. K. Ho, and F. Ayazi, "Electrostatically coupled micromechanical beam filters," proceedings, MEMS'04, pp. 584-587.
4. B. Vakili, S. Pourkamali, and F. Ayazi, "A high resolution, stictionless, CMOS compatible SOI accelerometer with a low noise, low power, 0.25μm CMOS interface," proceedings, MEMS'04, pp.572-575.
3. S. Pourkamali, and F. Ayazi, "SOI-based HF and VHF single-crystal silicon resonators with sub-100nm vertical capacitive gaps," proceedings, Transducers '03, 2003, pp.837-840.
2. S. Pourkamali, R. Abdolvand, and F. Ayazi, "A 600kHz electrically coupled MEMS bandpass filter," proceedings, MEMS'03, 2003, pp. 702-705.
1. S. Y. No, A. Hashimura, S. Pourkamali, F. Ayazi, "Single crystal silicon HARPSS capacitive resonators with submicron gap spacings," proceedings, Hilton Head 2002, solid-state sensor, actuator and Microsystems workshop, pp. 281-284.

PATENTS, PENDING PATENT APPLICATIONS AND INVENTION DISCLOSURES:

Provisional Patent Applications and Invention Disclosures Filed at DU Office of Technology Transfer

7. J. C. Wilson and S. Pourkamali, "Real-Time MEMS Aerosol Impactors," Invention disclosure filed, October 2012.
6. S. Pourkamali, and A. Hajjam, "Temperature Compensated High-Frequency Thermally Actuated Micro/Nanomechanical Resonators," PCT Application Filed October 2011.
5. S. Pourkamali, and A. Rahafrooz, "Self-Sustained High-Frequency Micro/Nanomechanical Extensional Mode Oscillators," PCT Application Filed October 2011.
4. S. Pourkamali, and A. Rahafrooz, "Rotational Mode Disk Resonators for High-Q Operation in Liquid," PCT Application Filed October 2011.
3. S. Pourkamali, "Electrostatic Internal Actuation of Micro/Nanomechanical Resonators using Embedded Monolithic Semiconductor PN Junctions," May 2009. Provisional Application Filed, December 2009, Application abandoned December 2010.
2. S. Pourkamali, "Low-Cost Solar Energy Harvesting Using Semiconductor Powder," October 2008. Application abandoned.
1. S. Pourkamali, "Arrays of Partially Encapsulated Silicon Capacitive Resonators for High Resolution Wireless Chemical and Biological Sensing," August 2007. Application abandoned.

US Patents

5. F. Ayazi, G. K. Ho, and S. Pourkamali, "Highly tunable low-impedance capacitive micromechanical resonators, oscillators, and processes relating thereto," US patent No. 7,511,870, March 2009.

4. F. Ayazi, S. Pourkamali and G. K. Ho, "Capacitive Vertical Silicon Bulk Acoustic Resonator (SiBAR)," US patent No. 7,176,770, February 2007.

3. F. Ayazi, and S. Pourkamali, "Electrically-coupled micro-electro-mechanical filter systems and methods," US patent No.7,098,757, August 2006.

2. F. Ayazi, R. Abdolvand and S. Pourkamali, "Methods of forming oxide masks with submicron openings therein and microstructures formed thereby," US patent No. 7,056,757, June 2006.

1. F. Ayazi, and S. Pourkamali, "Capacitive resonators and methods of fabrication," US patent No. 7,023,065, April 2006.

RESEARCH GRANTS AND FUNDING:

External (over $3.4M overall)

Total ~$2.2M external funding as PI:

11. femtoScale, Inc., NSF SBIR Subcontract "SBIR Phase II: MEMS Resonant Nanobalance Dew Point Meters," 09/01/2013-08/30/2015, $106,126.

10. NSF-1345161, "EAGER: Ultra-Sensitive Resonant MEMS Magnetometers with Internal Thermal-Piezoresistive Amplification," 10/01/2013-09/30/2015, $150,608.

9. NSF-1300143, "Fully Micromachined Cascade Impactors with Integrated Resonant Nanobalances," 06/01/2013-05/30/2016, $350,000.

8. NSF-1215249, "SBIR Phase I: Development of Particulate Mass and Count Monitoring Instruments Using Micro-Electro-Mechanical Resonant Balances," 07/01/2012-05/30/2013, $150,000.

7. DOE through MSP Corporation, "SBIR: Real-Time Size-Distributed Measurement of Aerosol Mass Concentration", 03/01/2012-11/30/2012, $150,000, Pourkamali's Subcontract: ~$48,000.

6. NSF-1056068, "CAREER: Thermally Actuated Nanomechanical Resonators and Self-Sustained Oscillators," 03/01/2011-02/28/2016, $399,938.

5. State of Colorado Office of Economic Development, Bioscience Discovery Evaluation Proof of Concept, "Development of a Nanomechanical Biosensing Platform," 02/20/2011-08/19/2012, $144,718 ($72,359 DU Cost Share).

4. NSF-1028710, "Very Large Scale Integrated MEMS for Massively Parallel Scanning Probe Nanolithography," 09/01/2010-08/31/2013, $329,887.

3. NSF-0800961, "Development of a Hybrid Nano-Electro-Mechanical Sensor Technology for Nanoscale Aerosol Mass and Momentum probing," 08/01/2008-07/30/2011, $246,302.

2. NSF-0741536, "SGER: Design and Optimization of High Frequency Silicon Capacitive Resonators for High-Q Operation in Liquid Media," 08/01/2008-07/30/2009, $51,782.

1. NSF-0741536, "NUE: Development of an Interdisciplinary Nano-Engineering Undergraduate Curriculum and Research Program at The University of Denver," 11/01/2007-10/30/2009, $204,657.

Total ~$1.1 external funding received as Co-PI:

5. NSF , "SBIR Phase II: MEMS Resonant Nanobalance Dew Point Meters," 09/01/2013-08/30/2015, $750,000, Pourkamali lead the preparation of the grant application and has been managing a major part of the research, but cannot serve as the PI due to time commitment/employment limitations.

4. NSF-1214737, "SBIR Phase I: MEMS Resonant Nanobalance Dew Point Meters," 07/01/2012-12/31/2012, $150,000, Pourkamali lead the preparation of the grant application and managed a major part of the research, but could not serve as the PI due to time commitment/employment limitations.

3. NSF-1061489, "MRI RAPID: Swarms of Robotic Aquapods to Assess Impact of Oil Spills on Marshlands," 09/15/2010-09/14/2011, $199,987, Pourkamali's Subcontract: ~$50,000.

2. NSF-0934413, "Collaborative Research: I/UCRC for Safety, Security, and Rescue Research," 07/27/2009, $126,000.

1. NSF-0923518, "MRI Development: Heterogeneous, Autonomic Wireless Control Networks for Scalable Cyber-Physical Systems," 09/01/2009-08/31/2012, $1,556,219, Pourkamali's Share: ~$180,000.

Internal Research Grants

Total ~$130,000

5. Interdisciplinary Research Grant, "A Comprehensive Developmental Study of Nanoporous Micro-Elecromechanical Resonant Gas Sensors," $59,983, 03/2011-03/2013.

4. Equipment Acquisition Grant, "Acquisition of a High Frequency Oscilloscope with Jitter Measurement Capability," $31,290, 01/2011-01/2012.

3. PROF, "Design and Batch Fabrication of Nano-Electro-Mechanical Devices Using Optical Micro-Lithography," 07/01/2010-06/30/2012, $20,000.

2. Faculty Research Fund (FRF), "Photovoltaic Semiconductor Micro-Particles for Solar Hydrogen Generation," 07/01/2009-08/31/2010, $3,000.

1. PROF, "Design and Fabrication of a Micro-Scale Silicon-Based Batch Nanolithography System", 07/01/2008-06/30/2009, $15,000.

Internal Undergraduate Student Research Grants

2. DU Undergraduate Summer Research Grant, "Assembly and Characterization of a Silicon-Zinc Solar Panel Prototype and its Interface with an Electric Bicycle," 06/15/2010-09/15/2010, Student Researcher: Joshua Lane, $2,800.

1. DU Summer Undergraduate Research Apprenticeship, 06/01/2007-08/20/2007, $7000.

OTHER PUBLICATIONS AND PRESENTATIONS

Book chapters

3. O. Brand and S. Pourkamali, "Thermal Devices," Resonant MEMS: Principles, Modeling, Implementation and Applications *Series "Advanced Micro & Nanosystems" (AMN) Wiley VCH*, 2013, In Press.
2. S. Pourkamali, "Thermally Actuated Resonators," Encyclopedia of Nanotechnology, *Springer-Verlag*, pp. 2712–2723, 2012.
1. G. Kundahl and S. Pourkamali, "The Science of Nanotechnology," Nanotechnology & FDA-Regulated Products: The Essential Guide, *The Food and Drug Law Institute*, 2009.

Tutorials, Symposium and Seminar Presentations

11. S. Pourkamali, "Ultimate MEMS Sensors," Invited tutorial at IEEE Sensors Conference, November 2013.
10. S. Pourkamali, "Micro/Nanomechanical Electro-Thermal Resonant Transistors for Sensing and Frequency Referencing," Seminar at Texas Analog Center of Excellence (TxACE), University of Texas at Dallas, April 3rd, 2013.
9. S. Pourkamali, "Micro/Nanomechanical Electro-Thermal Resonant Transistors for Sensing and Frequency Referencing," Seminar at Department of Electrical and Computer Engineering, New Jersey Institute of Technology, April 4th, 2012.
8. S. Pourkamali, "Micro/Nanomechanical Electro-Thermal Resonant Transistors for Sensing and Frequency Referencing," Seminar at Department of Electrical and Computer Engineering, Northeastern University, March 30th, 2012.

7. S. Pourkamali, "Micro/Nanomechanical Electro-Thermal Resonant Transistors for Sensing and Frequency Referencing," Seminar at Department of Electrical Engineering, University of Texas at Dallas, March 21st, 2012.
6. A. Rahafrooz and Siavash Pourkamali, "Nanoprecision Controlled Batch Fabrication of Silicon Nanowires using Optical Micro-Lithography," Oral Presentation at University of Denver Nanoscale Science and Engineering Symposium, May 26, 2009.
5. A. Hajjam, A. Rahafrooz, J. C. Wilson, and S. Pourkamali, "Micromachined Resonant Sensors for Individual Aerosol Nano-particle Mass and Size Monitoring," Poster Presentation at University of Denver Nanoscale Science and Engineering Symposium, May 26, 2009.
4. B. Tousifar, A. Rahafrooz and Siavash Pourkamali, "Low-Cost Solar Energy Solutions Based on Silicon Micro/Nano-Particles," Poster Presentation at University of Denver Nanoscale Science and Engineering Symposium, May 26, 2009.
3. S. Pourkamali and J. C. Wilson, "Micromechanical Resonant Sensors for Simultaneous Mass and Momentum Measurement of Nanoscale Aerosol Particles," Proceedings, NSF CMMI Engineering Research and Innovation Conference, June 2009.
2. S. Pourkamali, et al, "Interdisciplinary Nano-Engineering Undergraduate Curriculum at The University of Denver," NSF Engineering Education Awardees Conference, February 2009.
1. S. Pourkamali, "Fully Silicon Micromachined Transducers and the Transition towards Nanoscale," Invited Seminar Presentation at Department of Mechanical Engineering, University of Colorado, Boulder, October 2007.

TEACHING

University of Texas at Dallas

Spring 2013, 2014	EEMF/MSEN 6382, MECH 6347 - Introduction to MEMS
Fall 2013	EE/CE 3310- Electronic Devices

University of Denver

Fall 2007, 2008, 2009, Spring 2011, 2012	ENEE 3011- Physical Electronics
Winter 2012	ENEE 2222- Advanced Electronics
Spring 2007, Fall 2007, Summer 2011	ENGR 4810- Introduction to MEMS and Microsystems
Fall 2010	ENEE 4800 - Introduction to Nanotechnology
Spring 2009, 2010, Fall 2010	ENGR 4210 - Introduction to Nano-Electro-Mechanical Systems
Winter 2007-2011	ENGR 1621- Engineering Concepts and Practice
Fall 2006	ENGR 3610- Engineering Analysis

PROFESSIONAL CONTRIBUTIONS

Grant Proposal Reviewer

March 2013	NSF ECCS Review Panel, Communications, Circuits, and Sensing Systems (CCSS)

April 2013	NSF ECCS Review Panel, Major Research Instrumentation
June 2012	NSF ECCS Panel, Electronics, Photonics, and Magnetic Devices (EPMD)
June 2011	NSF ECCS Panel, Electronics, Photonics, and Magnetic Devices (EPMD)
April 2011	University of Denver Professional Research Opportunities for Faculty (PROF) review committee member
Dec. 2009	NSF CMMI Panel, Sensors and Sensing Systems (SSS)
July 2008	NSF EEC Panel, Nanotechnology Undergraduate Education
May 2008	NSF ECCS Panel, Integrative, Hybrid and Complex Systems (IHCS)

Journal Reviewer

2005-present	IEEE/ASME Journal of Micro Electro Mechanical Systems
2006-present	IEEE Sensors Journal
2006-present	Elsevier Journal of Sensor and Actuators A: Physical
2006-present	Journal of Micromechanics and Micro-Engineering
2008-present	IEEE Transactions on Advanced Packaging
2009-present	IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control
2009-present	IOP Journal of Nanotechnology
2009-present	Reviewer, Journal of Intelligent Robotic Systems
2010-present	Reviewer, IOP Journal of Physics D: Applied Physics
2011-present	Reviewer, IEEE Transactions on Electron Devices
2011-present	Reviewer, Journal of Micromachines
2011-present	Elsevier Journal of Sensor and Actuators B: Chemical
2013-present	IEEE Electron Device Letters

Conference Peer Review/Organization

Summer 2013, 2014	Technical Subcommittee Member, Sensors, MEMS and Displays, 2013 IEEE International Electron Device Meeting (IEDM)
Spring 2011-2013	Technical Program Committee Member, 2012 IEEE Sensors Conference
Winter 2010	Technical Program Committee Member, 23rd Canadian Conference on Electrical and Computer Engineering
Summer 2009	Member of organization committee, 2009 IEEE Transducers Conference

RESEARCH ADVISING:

Postdoctoral Research Associates

2. Dr. Xiaobo Guo, Summer 2013- present

1. Dr. Amir Rahafrooz (Senior Research Scientist), Fall 2011-Fall 2012

Graduate

20. Alireza Ramezany (Current PhD student), Fall 2013-present

19. Melika Rostami (Current PhD student), Fall 2013- present

18. Mohammad Mahdavi (Current PhD student), Fall 2013- present

17. Maribel Maldonado Garcia (Current PhD student), Summer 2013- present

16. Shuang Xu (Current MS student), Spring 2013-present
15. Varun Kumar Subramaniam (Current MS student), Spring 2013-present
14. Emad Mehdizadeh (Current PhD student), Fall 2011-present
13. Ayesha Eqbal (Current MS student at DU), Fall 2011-present
12. Sally (Xin) Li (Current MS student at DU), Winter 2011- Present
11. Xiaobo Guo (PhD student, Co-advised by Prof. Yi, Stayed at DU), Spring 2011- Summer 2012
10. Xiaoxiao, Dai (MS thesis student, Stayed at DU, changes advisor), Winter 2012-Summer 2012
9. Meng Wu (MS thesis student, Stayed at DU, changed advisor), Winter 2012-Summer 2012
8. Justin Jacobs (MS student researcher), Fall 2010- Spring 2011
7. Mona Mirzaei (current PhD student), Fall 2010 – Fall 2011, left DU due to family relocation
6. Harita Gulkotwar (MS student), Fall 2010, left DU due to family relocation
5. Jagadeesh Pandiyan (PhD student co-advised by Prof. Voyles), Spring 2010 – Fall 2011
4. Babak Tousifar (graduated MS student), Spring 2009 – Fall 2011
3. Arash Hajjam (graduated PhD student), Fall 2008 – Summer 2012
2. Amir Rahafrooz (graduated PhD student), Fall 2007 – Summer 2011
1. Siddhartha Kala (graduated MS student), Spring 2007-Spring 2009

Undergraduate

13. Gilberto Guerra (undergraduate research Assistant), Spring 2014- present
12.Hailey McCurry (undergraduate research Assistant), Spring 2014- present
11. Kristine Dietrich (undergraduate research Assistant), Summer 2011-Spring 2012
10. Brandon Bourn (undergraduate research Assistant), Summer 2011-Spring 2012
9. Justin Huff (undergraduate research Assistant), Spring 2011-Spring 2012
8. Willy Douglas (undergraduate research Assistant), Winter 2011-Fall 2011
7. Andrew Logan (undergraduate research Assistant), Spring 2010-Summer 2011
6. Kole Reece (undergraduate intern from Michigan State University), Summer 2010
5. Joshua Lane (undergraduate research Assistant), Summer 2010
4. Jonathan Falcey (undergraduate research Assistant), Summer 2009
3. Kari Storslet (undergraduate research Assistant), Spring 2009
2. Nafisa Matin (undergraduate research Assistant), Winter 2007-Fall 2007
1. Kenneth Comstock (undergraduate research Assistant), Summer 2007

GRADUATE STUDENT THESES:

4. Arash Hajjam (PhD in EE), Fall 2008-Summer 2012
Thesis Title: Thermally Actuated Resonant Silicon Crystal Nanobalances

3. Babak Tousifar (MS in Bioengineering), Spring 2009 - Fall 2011
Thesis Title: Label-Free Biochemical Recognition Using MEMS Resonators for Microarray Technology

2. Amir Rahafrooz (PhD in EE), Fall 2007 – Summer 2011
Thesis Title: High Frequency Thermally Actuated Micromechanical Resonators with Piezoresistive Readout

1. Siddhartha Kala (MS in EE), Spring 2007 – Spring 2009

Thesis Title: Fabrication of Silicon Photo-Voltaic Micro-Particles for Low-Cost Solar Energy Generation

INSTITUTIONAL AND PROFESSIONAL SERVICES:

University:

Fall 2010-Spring 2012	SECS representative in the University Graduate Council
Summer 2009-Spring 2012	SECS representative in the University Honors Council
Spring 2011	Served on DU PROF peer review committee

Division and School:

Spring 2008- Spring 2012	Engineering Representative in Partners in Scholarship (PINS) Review Committee
Summer 2007-2009	Contributions to the Extreme Sports Summer Camp Outreach Program

Department:

Spring 2013-present	UTD-EE PhD Program Committee Member
2011-2012	Electrical Engineering graduate program assessment coordinator
Spring 2009	Electrical Engineering Department Representative at the Penrose Library LLGA Meetings
Fall 2007-present	Served on Several Faculty Search Committees
Fall 2006- Summer 2007	Chair, EE Curriculum Committee