

Mark G. Allen

Alfred Fittler Moore Professor of Electrical and Systems Engineering
Scientific Director, Singh Center for Nanotechnology
University of Pennsylvania

I. EARNED DEGREES

Degree	Year	University	Area
Ph.D.	1989	Massachusetts Institute of Technology	Chemical Eng/Microelectronics
S.M.	1986	Massachusetts Institute of Technology	Chemical Engineering
B.S.E.E.	1988	University of Pennsylvania	Electrical Engineering
B.S.Ch.E.	1984	University of Pennsylvania	Chemical Engineering
B.A.	1984	University of Pennsylvania	Chemistry

II. EMPLOYMENT

Position	Employer	Dates
Moore Professor	University of Pennsylvania	2013-present
Director, Singh Nanotech Center	University of Pennsylvania	2013-present
Executive Director	GT Institute for Electronics and Nanotechnology	2011-2013
Acting Director	GT Georgia Electronic Design Center	2010-2011
Senior Vice Provost, Research	Georgia Institute of Technology	2007-2010
Regents' Professor	Georgia Institute of Technology	2005-2013
Professor	Georgia Institute of Technology	1999-2013
Associate Professor (tenure)	Georgia Institute of Technology (GT)	1994-1999
Postdoctoral Associate	Massachusetts Institute of Technology	1989

III. SCHOLARLY PUBLICATIONS AND PRESENTATIONS

III.A. Published Books and Parts of Books

1. Allen, M.G. and Senturia, S.D., "Microfabricated Structures for the Measurement of Adhesion and Mechanical Properties of Polymer Films," in Adhesives, Sealants, and Coatings for Space and Other Harsh Environments, pp. 501-508, (L.H. Lee, ed.), Plenum Press, New York, 1988.
2. Allen, M.G., Nagarkar, P.V., and Senturia, S.D., "Aspects of Adhesion Measurement of Thin Polyimide Films," in Polyimides: Materials, Chemistry, and Characterization, pp. 705-717, (C. Feger, ed.) Elsevier Science Publishers, Amsterdam, 1989.
3. Allen, M.G., *Special Tests For Membranes and Miniature Components*, in the American Society for Materials International Handbook Volume 3: Adhesives and Sealants, ASM Press, Metals Park, Ohio, 1990.
4. Jardine, A.P., Johnson, G.C., Crowson, A., and Allen, M.G. (eds.), Smart Materials Fabrication and Materials for Microelectromechanical Systems, Materials Research Society Press, vol. 276, 1992.
5. Hodge, T.C., Kohl, P.A., Bidstrup, S.A., Lee, J.B. and Allen, M.G., "In-Situ Thermal Expansion Measurements of Interlevel Dielectric Polymer Films", in Polyimides: Trends in Materials and Applications, pp. 287 - 302 (C. Feger, Mahmoud M. Khojasteh, Steven E. Molis Eds.), Connecticut: Society of Plastic Engineers, 1996.
6. Arnold, D., and Allen, M.G., "Fabrication of Microscale Rotating Magnetic Machines," in Multi-Wafer Rotating MEMS Machines, (ed. Lang, J.H.), Springer, 2009.

III.B. Journal Publications

1. Hasan, T., Allen, M.G., and Cooperman, B.S., "Anhydrotetracycline is a Major Product of Tetracycline Photolysis," *Journal of Organic Chemistry*, vol. 50, no. 10, pp. 311-313 (1985)

2. Allen, M.G., Mehregany, M., Howe, R.T., and Senturia, S.D., "Microfabricated Structures for the In-Situ Measurement of Residual Stress, Young's Modulus, and Ultimate Strain of Thin Films," *Applied Physics Letters*, vol. 51, no. 4, pp. 241-244 (1987)
3. Allen, M.G. and Senturia, S.D., "Analysis of Critical Debonding Pressures of Stressed Thin Films in the Blister Test," *Journal of Adhesion*, vol. 25, pp. 303-315 (1988)
4. Allen, M.G. and Senturia, S.D., "Application of the Island Blister Test for Thin Film Adhesion Measurement," *Journal of Adhesion*, vol. 29, pp. 219-231 (1989)
5. Allen, M.G., Nikolich, A., Scheidl, M., and Smith, R.L., "Movable Micromachined Silicon Plates with Integrated Position Sensing," *Sensors and Actuators*, A21-A23, pp. 211-214 (1990)
6. Camperi-Ginestet, C., Hargis, M., Jokerst, N., and Allen, M.G., "Alignable Epitaxial Liftoff of Gallium Arsenide Materials with Selective Deposition Using Polyimide Diaphragms," *IEEE Photonics Technology Letters*, vol. 3, no. 12, pp. 1123-1125 (1991)
7. Kim, Y.W. and Allen, M.G., "Single and Multilayer Surface Micromachined Platforms Using Electroplated Sacrificial Layers," *Sensors and Actuators*, A35, pp. 61-68 (1992)
8. Camperi-Ginestet, C., Kim, Y.W., Jokerst, N., Allen, M.G., and Brooke, M., "Three Dimensional Integrated Circuits: Compound Semiconductor Detectors Integrated Directly On Top Of Integrated Circuits," *IEEE Photonics Technology Letters*, vol. 4, no. 9, pp. 1003-6 (1992)
9. Frazier, A.B. and Allen, M.G., "Piezoresistive Graphite/Polyimide Thin Films for Micromachining Applications," *Journal of Applied Physics* (73), pp. 4428-4433 (1993)
10. Ahn, C.H. and Allen, M.G., "A Planar Micromachined Spiral Inductor for Integrated Magnetic Microactuator Applications," *Journal of Micromechanics and Microengineering*, vol. 3, no. 2, pp. 37-44 (1993)
11. Ahn, C.H. and Allen, M.G., "A Fully Integrated Surface Micromachined Magnetic Microactuator with a Multilevel Meander Magnetic Core," *IEEE Journal of Microelectromechanical Systems*, vol. 2, no. 1, pp. 15-22 (1993)
12. Frazier, A.B. and Allen, M.G., "Metallic Microstructures Fabricated Using Photosensitive Polyimide Electroplating Molds," *IEEE Journal of Microelectromechanical Systems*, vol. 2, no. 2, pp. 87-94 (1993)
13. Ahn, C.H., Kim, Y.J., and Allen, M.G., "A Planar Variable Reluctance Magnetic Micromotor with Fully Integrated Stator and Coils," *IEEE Journal of Microelectromechanical Systems*, vol. 2, no. 4, pp. 165-73 (1993)
14. Ahn, C.H. and Allen, M.G., "New Toroidal-Meander-Type Integrated Inductor with a Multilevel Meander Magnetic Core," *IEEE Transactions on Magnetics*, vol. 30, no. 1, pp. 73-79 (1994)
15. Ahn, C.H., Kim, Y.J., and Allen, M.G., "A Fully Integrated Planar Toroidal Inductor with a Micromachined Nickel-Iron Magnetic Bar," *IEEE Transactions on Components, Packaging, and Manufacturing Technology, Part A*, vol. 17, no. 3, pp. 463-469 (1994)
16. Frazier, A.B., Olson, C.S., Turner, S.P., and Allen, M.G., "Characterization of Graphite-Filled Polyimide Thin Films Using Micromachining Techniques," *International Journal of Microcircuits and Electronic Packaging*, vol. 17, no. 1, pp. 37-49 (1994)
17. Wilkinson, S.T., Kim, Y.W., Jokerst, N.M., and Allen, M.G., "Integration of Thin Film Optoelectronic Devices onto Micromachined Movable Platforms," *IEEE Photonics Technology Letters*, v. 6, n. 9, p. 1115-18 (1994)
18. Frazier, A.B., Ahn, C.H., and Allen, M.G., "Development of Micromachined Devices using Polyimide-Based Processes," *Sensors and Actuators A (Physical)*, vol. A45, no. 1, pp. 47-55 (1994)
19. Lee, J.B., Chen, Z., Allen, M.G., Rohatgi, A., and Arya, R., "A Miniaturized High-Voltage Solar Cell Array as an Electrostatic MEMS Power Supply," *IEEE Journal of Microelectromechanical Systems*, vol. 4, no. 3, pp. 102-108 (1995)
20. Carter-Coman, C., Brown, A.S., Bicknell-Tassius, R., Jokerst, N.M., and Allen, M.G., "Strain-Modulated Epitaxy: A Flexible Approach to 3-D Band Structure Engineering Without Surface Patterning," *Applied Physics Letters*, vol. 69, no. 2 pp. 257-259 (1996)

21. Ahn, C.H. and Allen, M.G., "A Comparison of Two Micromachined Inductors (Bar- and Meander-Type) for Fully Integrated Boost DC/DC Power Converters," *IEEE Transactions on Power Electronics*, vol. 11, no. 2, pp. 239-245 (1996)
22. Lee, J.B., Allen, M.G., Hodge, T.C., Bidstrup, S.A., and Kohl, P.A., "Modeling of Substrate-Induced Anisotropy in Through-Plane Thermal Behavior of Polymeric Thin Films," *Journal of Polymer Science, Part B (Polymer Physics)*, vol. 34, no. 9, pp. 1591-6 (1996)
23. Nami, Z., Ahn, C.H., and Allen, M.G., "An Energy-Based Design Criterion for Magnetic Microactuators," *Journal of Micromechanics and Microengineering*, vol. 6, no. 3, pp. 337-44 (1996)
24. Ahn, C.H., Allen, M.G., Trimmer, W., Jun, Y.-N., and Erramilli, S., "A Fully Integrated Micromachined Magnetic Particle Separator," *IEEE Journal of Microelectromechanical Systems*, v. 5, n. 3, pp. 151-8 (1996)
25. Lee, J.B., English, J., Ahn, C.-H., and Allen, M.G., "Planarization Techniques for Vertically Integrated Metallic MEMS on Silicon Foundry Circuits," *Journal of Micromechanics and Microengineering*, vol. 7, no. 2, pp. 44-54 (1997)
26. Lagorce, L.K. and Allen, M.G., "Magnetic and Mechanical Properties of Micromachined Strontium Ferrite/Polyimide Composites," *IEEE Journal of Microelectromechanical Systems*, v. 6, n. 4, pp. 307-12 (1997)
27. Frazier, A.B. and Allen, M.G., "Uses of Electroplated Aluminum for the Development of Microstructures and Micromachining Processes," *IEEE Journal of Microelectromechanical Systems*, vol. 6, no. 2, pp. 91-98 (1997)
28. Park, J.Y., Lagorce, L.K., and Allen, M.G., "Ferrite-Based Integrated Planar Inductors and Transformers Fabricated at Low Temperature," *IEEE Transactions on Magnetics*, vol. 33, no. 5, pt. 1, pp. 3322-3324 (1997)
29. Taylor, W.P., Brand, O., and Allen, M.G., "Fully Integrated Magnetically Actuated Micromachined Relays," *IEEE Journal of Microelectromechanical Systems*, vol. 7, no. 2, pp. 181-191 (1998)
30. Kim, Y.J., and Allen, M.G., "Surface Micromachined Solenoid Inductors for High Frequency Applications," *IEEE Transactions on Components, Packaging & Manufacturing Technology, Part C (Manufacturing)*, vol. 21, no. 1, pp. 26-33 (1998)
31. Chahal, P., Tummala, R.R., Allen, M.G., and Swaminathan, M., "A Novel Integrated Decoupling Capacitor for MCM-L Technology," *IEEE Transactions on Components, Packaging and Manufacturing Technology, Part B: Advanced Packaging*, vol. 21, no. 2, pp. 184-193 (1998)
32. Henry, S., McAllister, D.V., Allen, M.G., and Prausnitz, M.R., "Microfabricated Microneedles: A Novel Approach to Transdermal Drug Delivery," *Journal of Pharmaceutical Sciences*, v. 87, no. 8, pp. 922-5 (1998)
33. Park, J.Y. and Allen, M.G., "Development of Magnetic Materials and Processing Techniques Applicable to Integrated Micromagnetic Devices," *Journal of Micromechanics and Microengineering*, vol. 8, no. 4, pp. 307-316 (1998)
34. Taylor, W.P., Brand, O., and Allen, M.G., "Fully Integrated Magnetically Actuated Micromachined Relays," *IEEE Journal of Microelectromechanical Systems*, vol. 7, no. 2, pp. 181-191 (1998)
35. Chahal, P., Tummala, R.R., Allen, M.G., and Swaminathan, M., "A Novel Integrated Decoupling Capacitor for MCM-L Technology," *IEEE Transactions on Components, Packaging and Manufacturing Technology, Part B: Advanced Packaging*, vol. 21, no. 2, pp. 184-193 (1998)
36. Park, J.Y. and Allen, M.G., "Packaging-Compatible Microinductors and Microtransformers with Screen-Printed Ferrite using Low Temperature Processes," *IEEE Transactions on Magnetics*, vol. 34, no. 4, pt. 1, p.1366-8 (1998)
37. Ahn, C.H. and Allen, M.G. "Micromachined Planar Inductors on Silicon Wafers for MEMS Applications," *IEEE Transactions on Industrial Electronics*, vol.45, no.6, p.866-76 (1998)
38. Lagorce, L., Brand, O., and Allen, M.G., "Magnetic Microactuators Based on Polymer Magnets," *IEEE Journal of Microelectromechanical Systems*, vol.8, no.1, pp. 2-9 (1999)
39. Park, J.Y.; Allen, M.G., "Packaging-compatible high Q microinductors and microfilters for wireless applications," *IEEE Transactions on Advanced Packaging*, vol.22, no.2, pp. 207-13 (1999)

40. Kim, Y.J.; Allen, M.G., "In situ measurement of mechanical properties of polyimide films using micromachined resonant string structures," *IEEE Transactions on Components and Packaging Technologies*, vol.22, no.2, pp. 282-90 (1999)
41. Park, J.Y.; Han, S.H.; Allen, M.G., "Batch-fabricated microinductors with electroplated magnetically anisotropic and laminated alloy cores," *IEEE Transactions on Magnetics*, vol.35, no.5, pt.3, p.4291-4300 (1999)
42. Taylor, W.P.; Schneider, M.; Baltes, H.; Allen, M.G., "A NiFeMo electroplating bath for micromachined structures," *Electrochemical and Solid-State Letters*, vol.2, no.12, pp. 624-6 (1999)
43. Park, J.Y.; Allen, M.G., "High Q spiral-type microinductors on silicon substrates," *IEEE Transactions on Magnetics*, vol.35, no.5, pt.2, pp. 3544-6 (1999)
44. Bhattacharya, S.K.; Park, J.Y.; Tummala, R.R.; and Allen, M.G., "Fabrication of a Fully Integrated Passive Module for Filter Application using MCM-D Compatible processes," *J. Materials Science: Materials in Electronics*, vol. 11, no. 6, pp. 455-60 (2000)
45. Park, J.Y., and Allen, M.G., "Integrated Electroplated Micromachined magnetic Devices using Low Temperature Fabrication Processes," *IEEE Transactions on Electronics Packaging Manufacturing*, vol. 23, no. 1, pp. 48-55 (2000)
46. Seriburi, P.; Kercher, D.; Allen, M.G., "An Experimental Study of Microfabricated Spark Gaps: Wear and Erosion Characteristics," *J. Micromechanics Microengineering*, vol. 11, no. 3, pp. 165-74 (2001)
47. Park, J.W.; Park, J.Y.; Joung, Y.H.; Allen, M.G., "Fabrication of High Current and Low Profile Micromachined Inductor with Laminated Ni/Fe Core," *IEEE Transactions on Components and Packaging Technologies*, vol. 25, no. 1, pp. 106-111 (2002)
48. Fonseca, M.A.; English, J.M.; von Arx, M.; Allen, M.G., "Wireless Micromachined Ceramic Pressure Sensor for High Temperature Applications," *IEEE J. Microelectromechanical Systems*, v. 11, no. 4, pp. 337-43 (2002)
49. Chang, S.P.; Lee, J.B.; Allen, M.G., "A Robust Capacitive Pressure Sensor Array," *Sensors and Actuators A (Physical)*, vol. A101, no. 1-2, pp. 231-8 (2002)
50. Dongsu Kim; Yoonsu Choi; Allen, M.G.; Kenney, J.S.; Kiesling, D., "A wide-band reflection-type phase shifter at S-band using BST coated substrate" *IEEE Transactions on Microwave Theory and Techniques* , v 50, n 12, pp. 2903-9 (2002)
51. Allen, M.G., "MEMS technology for the fabrication of RF magnetic components" *IEEE Transactions on Magnetics*, v 39, n 5, pt.2, pp. 3073-8 (2003)
52. Yoon, Y.K.; Kim D.; Allen, M.G.; Kenney, J.S.; Hunt, A.T., "A reduced intermodulation distortion tunable ferroelectric capacitor-architecture and demonstration" *IEEE Transactions on Microwave Theory and Techniques* , v 51, n 12, pp. 2568-76 (2003)
53. Kim, D; Choi, Y.; Ahn, M.; Allen, M.G.; Kenney, J.S., "Monolithic 180 degrees and 360 degrees analog phase shifters based on barium strontium titanate coated sapphire substrates; *IEICE Transactions on Electronics* , v E86-C, n 8, pp. 1607-12 (2003)
54. Kaiser, T.J.; Allen, M.G., "A pendulous oscillating gyroscopic accelerometer fabricated using deep-reactive ion etching" *IEEE Journal of Microelectromechanical Systems* , v 12, n 1, pp. 21-8 (2003)
55. Park, J.W.; Allen, M.G., "Ultralow-profile micromachined power inductors with highly laminated Ni/Fe cores: application to low-megahertz DC-DC converters" *IEEE Transactions on Magnetics* , v 39, n 5, pt.2, p 3184-6 (2003)
56. Kim, D.; Choi, Y.; Ahn, M.; Allen, M.G.; Kenney, J.S.; Marry, P. "2.4 GHz continuously variable ferroelectric phase shifters using all-pass networks" *IEEE Microwave and Wireless Components Letters*, v 13, n 10, pp. 434-436 (2003)
57. Kercher, D.S.; Lee, J.B.; Brand, O.; Allen, M.G.; Glezer, A., "Microjet cooling devices for thermal management of electronics" *IEEE Transactions on Components and Packaging Technologies* , v 26, n 2, p 359-66 (2003)

58. Chang, S.P.; Allen, M.G., "Capacitive pressure sensors with stainless steel diaphragm and substrate" *Journal of Micromechanics and Microengineering* , v 14, n 4, pp. 612-18 (2004)
59. Park, J.W.; Cros, F.; Allen, M.G., "Planar spiral inductors with multilayer micrometer-scale laminated cores for compact-packaging power converter applications" *IEEE Transactions on Magnetics* , v 40, n 4, pt. 2, p. 2020-2 (2004)
60. DiBiao, H.H.; English, B.A.; Allen, M.G., "Solid-phase conductive fuels for chemical microactuators" *Sensors and Actuators A (Physical)* , v. A111, n 2-3, p 260-6 (2004)
61. Arnold, D.P.; Zana, I.; Cros, F.; Allen, M.G., "Vertically laminated magnetic cores by electroplating Ni-Fe into micromachined Si" *IEEE Transactions on Magnetics* , v 40, n 4, pt.2, pp. 3060-2 (2004)
62. Davis, S.P.; Landis, B.J.; Adams, Z.H.; Allen, M.G.; Prausnitz, M.R., "Insertion of microneedles into skin: measurement and prediction of insertion force and needle fracture force" *Journal of Biomechanics* , v 37, n 8, pp. 1155-63 (2004)
63. Arnold, D.P.; Cros, F.; Zana, I.; Veazie, D.R.; Allen, M.G., "Electroplated metal microstructures embedded in fusion-bonded silicon: conductors and magnetic materials," *IEEE Journal of Microelectromechanical Systems* , v 13, n 5, pp. 791-8 (2004)
64. Leichle, T.C.; Von Arx, M.; Reiman, S.; Zana, I.; Wenjing Y ; Allen, M.G., "A low-power resonant micromachined compass" *Journal of Micromechanics and Microengineering*, v 14, n 4, pp. 462-70 (2004)
65. Chang, S.P., and Allen, M.G., "Demonstration for Integrating Capacitive Pressure Sensors with Readout Circuitry on Stainless Steel Substrates," *Sensors and Actuators A (Physical)*, vol. A116, no. 2, p. 195-204 (2004)
66. Courcimault, C., Allen, M.G., "Reconfigurable shadow mask technology: A microsystem for metal nanoline deposition", *Nanotechnology*, vol. 15, no. 10, page S528-S533 (2004)
67. Park, J.-H.; Allen, M.G.; and Prausnitz, M.R., "Biodegradable polymer microneedles: fabrication, mechanics and transdermal drug delivery," *Journal of Controlled Release* 104:51-66 (2005)
68. Yoon, Y.K., and Allen, M.G., "Embedded Conductor Technology for Micromachined RF Elements," *Journal of Micromechanics and Microengineering*, v 15, n 6, p 462-70 (2005)
69. Arnold, D.P., Zana, I., and Allen, M.G., "Analysis and Optimization of Vertically Oriented, Through-Wafer, Laminated Magnetic Cores in Silicon," *Journal of Micromechanics and Microengineering*, v 15, n 5, p 971-7 (2005)
70. Chung, C., and Allen, M.G., "Uncrosslinked SU-8 as a Sacrificial Material," *Journal of Micromechanics and Microengineering*, v 15, n 1, p N1-5 (2005)
71. Davis, S.P., Martanto, W., Allen, M.G., and Prausnitz, M.R., "Hollow Metal Microneedles for Insulin Delivery to Diabetic Rats," *IEEE Transactions on Biomedical Engineering*, v. 52, no. 5, p. 909-15 (2005)
72. Yong Wang, Guang Yuan, Yong-Kyu Yoon, Allen, M.G., Bidstrup, S.A. "Active cooling substrates for thermal management of microelectronics," *IEEE Transactions on Components and Packaging Technologies*, v 28, n 3, p. 477-83 (2005)
73. Yong-Kyu Yoon, Jin-Woo Park, Mark G. Allen, "Polymer-core conductor approaches for RF MEMS," *IEEE Journal of Microelectromechanical Systems*, v. 14, n. 5, p. 886-894 (2005)
74. Yong-Kyu Yoon, Kenney, J.S., Hunt, A.T., Allen, M.G. "Low-loss microelectrodes fabricated using reverse-side exposure for a tunable ferroelectric capacitor application," *Journal of Micromechanics and Microengineering*, v 16, n 2, p 225-34 (2006)
75. Arnold, D. P., Das, S., Cros, F., Zana, I., Lang, J. H., and Allen, M. G., "Magnetic induction machines integrated into bulk-micromachined silicon," *IEEE Journal of Microelectromechanical Systems*, vol. 16, no. 2, pp. 406- 414, (2006)
76. Cros, F.; Koser, H.; Allen, M.G.; Lang, J.H., "Magnetic induction micromachines-Part II: Fabrication and Testing," *IEEE Journal of Microelectromechanical Systems*, v 15, n 2, p. 427-39 (2006)

77. Bidstrup, S.A., Y. Wang, G Yuan, Y.-K. Yoon, Allen, M.G., "Large eddy simulation (LES) for synthetic jet thermal management," *International Journal of Heat and Mass Transfer*, v 49, n 13-14, p 2173-9 (2006)
78. Arnold, D. P., Herrault F., Zana I., Galle P., Park J.-W., Das, S., Lang, J. H., and Allen, M. G., " Design optimization of an 8 W, microscale, axial-flux, permanent-magnet generator," *Journal of Micromechanics and Microengineering*, v 16, n 9, p. 290-6 (2006)
79. Chung, C.C., Allen, M.G. "Thermomigration-based junction isolation of bulk silicon MEMS devices," *IEEE Journal of Microelectromechanical Systems*, v 15, n 5, p 1131-8 (2006)
80. Yong-Kyu Yoon, Jung-Hwan Park, Allen, M.G. "Multidirectional UV lithography for complex 3-D MEMS structures," *IEEE Journal of Microelectromechanical Systems*, v 15, n 5, p 1121-30 (2006)
81. S. Choi, S.-H. Kim, Y.-K. Yoon, M. G. Allen. "A Magnetically Excited and Sensed MEMS-Based Resonant Compass," *IEEE Transactions on Magnetics*, vol. 42, no. 10, p. 3506-08 (2006)
82. Das, S.; Arnold, D.P.; Zana, I.; Jin-Woo Park; Allen, M.G., Lang, J.H.; "Microfabricated high-speed axial-flux multiwatt permanent-magnet generators-part I: modeling," *IEEE Journal of Microelectromechanical Systems*, v 15, n 5, p 1330-50 (2006)
83. Arnold, D.P.; Das, S.; Jin-Woo Park; Zana, I.; Lang, J.H.; Allen, M.G., "Microfabricated high-speed axial-flux multiwatt permanent-magnet generators-part II: design, fabrication, and testing," *IEEE Journal of Microelectromechanical Systems*, v 15, n 5, p 1351-63 (2006)
84. Coe, D.J., Allen, M.G., Rinehart, C.S., Glezer, A., "Pneumatically actuated micromachined synthetic jet modulators," *Sensors and Actuators A (Physical)*, v 132, n 2, p 689-700 (2006)
85. Y. Wang, G. Yuan, Y.-K. Yoon, Allen, M. G., Bidstrup, S. A., "Optimization of synthetic jet fluidic structures in printed wiring boards," *Transactions of the ASME. Journal of Electronic Packaging*, v 128, n 4, p 353-9 (2006)
86. Pan, B.; Yoon, Y.-K.; Ponchak, G.E.; Allen, M.G.; Papapolymerou, J.; Tentzeris, M.M.; "Analysis and Characterization of a High-Performance Ka-Band Surface Micromachined Elevated Patch Antenna," *Antennas and Wireless Propagation Letters*, Vol. 5, Issue 1, p. 511-514 (2006)
87. S. Rajaraman, S.-O Choi, R. H. Shafer, J. D. Ross, J. Vukasinovic, Y. Choi, S. P. DeWeerth, A. Glezer, and M. G. Allen., "Microfabrication technologies for a coupled three-dimensional microelectrode, microfluidic array," *Journal of Micromechanics and Microengineering*, v 17, n 1, p 163-71 (2007)
88. J.H. Park, S.O. Choi, R. Kamath, J.K Yoon, M.G. Allen, and M.R. Prausnitz, "Polymer particle-based micromolding to fabricate novel microstructures," *Biomedical Microdevices*, v 9, n 2, p. 223-234 (2007)
89. Y. Choi, M. McClain, M. LaPlaca, A. Frazier, and M.G. Allen, "Three-dimensional microfluidic perfusion system for thick brain slice cultures," *Biomedical Microdevices*, v 9, n 1, p. 7-13 (2007)
90. J.H. Park, Y.K Yoon, S.O. Choi, M.R. Prausnitz, and M.G. Allen, "Tapered conical polymer microneedles fabricated using an integrated lens technique," *IEEE Transactions on Biomedical Engineering*, v 54, n 5, p. 903-913 (2007)
91. Y.H. Joung and M.G. Allen, "Chip-to-board micromachining for interconnect layer passive components," *IEEE Transactions on Components and Packaging Technologies*, v 30, n 1, p 15-23 (2007)
92. Y. Choi, B. Wester, and M.G. Allen, "Mechanically driven microtweezers with integrated microelectrodes," *Journal of Micromechanics and Microengineering*, v 18, n 6, p 065004 (2008)
93. C. Ji, F. Herrault, and M.G. Allen, "A metallic buried interconnect process for through-wafer interconnection," *Journal of Micromechanics and Microengineering*, v 18, n 8, p 085016 (2008)
94. Y.H. Joung and M.G. Allen, "A micromachined chip-to-board interconnect system using electroplating bonding technology," *IEEE Transactions on Advanced Packaging*, v 31, n. 2, p. 357-66 (2008)
95. Y.H. Joung and M.G. Allen, "Inter-substrate microstructure formation by electroplating bonding technology," *Journal of Micromechanics and Microengineering*, v 18, n 4, p 045020 (2008)

96. X. Wu, G. Yuan, Y.K Yoon, and M.G. Allen, "Kinematically-stabilized microbubble actuator arrays," *IEEE/ASME J. Microelectromechanical Systems*, v 17, n 1, p. 124-32 (2008)
97. Herrault, F., Arnold, D.P., Zana, I., Galle, P., Allen, M.G., "High temperature operation of multi-watt, axial-flux, permanent-magnet microgenerators," *Sensors and Actuators: A Physical*, v 148, n 1, p 299-305, (2008)
98. Herrault, F., Ji, Chang-Hyeon, Allen, M.G., "Ultraminiaturized high-speed permanent-magnet generators for milliwatt-level power generation," *IEEE/ASME Journal of Microelectromechanical Systems*, v 17, n 6, p 1376-87 (2008)
99. Zhao, Y., Yoon, Y.K., Choi, S.O., Wu, X., Liu, Z., and Allen, M.G., "Three dimensional metal pattern transfer for replica molded microstructures," *Applied Physics Letters*, v 94, n 2, p 023301 (2009)
100. Ji, C.H., Herrault, F., Hopper, P., Smeys, P., Johnson, P., and Allen, M.G., "Electroplated metal buried interconnect and through-wafer metal-filled via technology for high-power integrated electronics," *IEEE Transactions on Advanced Packaging*, v 32, n 3, p 695-702 (2009)
101. Ji, C.H., Herrault, F., and Allen, M.G., "Micro projection lithography using microlens on a mask," *J. Micromech. Microeng.* 19 (2009) 127003 (6pp)
102. Kim, S.H., Ji, C.H., Galle, P., Herrault, F., Wu, X., Lee, J.H., Choi, C.H., and Allen, M.G., "An electromagnetic energy scavenger from direct airflow," *Journal of Micromechanics and Microengineering*, v 19, n 9, p 094010 (8 pp.), (2009)
103. Aiyar, A.R., Song, C., Kim, S.H., and Allen, M.G., "An all-polymer airflow sensor using a piezoresistive composite elastomer," *Smart Materials and Structures*, v 18, n 11, p 115002 (9 pp.), (2009)
104. McClain, M.A., LaPlaca, M.C., and Allen, M.G., "Spun-cast micromolding for etchless micropatterning of electrically functional PDMS structures," *Journal of Micromechanics and Microengineering*, v 19, n 10, p 107002 (6 pp.), (2009)
105. Herrault, F., Yen, B.C., Ji, C.H., Spakovszky, Z.S., Lang, J.H., and Allen, M.G., "Fabrication and performance of silicon-embedded permanent-magnet microgenerators," *Journal of Microelectromechanical Systems*, v 19, n 1, p 4-13 (2010)
106. Herrault, F., Yorish, S., Crittenden, T.M., Ji, C.H., and Allen, M.G., "Parylene-Insulated Ultradense Microfabricated Coils," *Journal of Microelectromechanical Systems*, v 19, n 6, p 1277-83 (2010)
107. Xu, W.J., Kranz, M., Kim, S.H., and Allen, M.G., "Micropatternable elastic electrets based on a PDMS/carbon nanotube composite," *Journal of Micromechanics and Microengineering*, v 20, n 10, p 104003 (7 pp.) (2010)
108. Zhao, Y., Li, Y., Pan, B., Kim, S.H., Liu, Z., Tentzeris, M.M., Papapolymerou, J., and Allen, M.G., "RF evanescent-mode cavity resonator for passive wireless sensor applications," *Sensors and Actuators: A Physical*, v 161, n 1-2, p 322-8 (2010)
109. Caves, J.M., Kumar, V.A., Xu, W., Naik, N., Allen, M.G., and Chaikof, E.L., "Microcrimped collagen fiber-elastin composites," *Advanced Materials*, v 22, n 18, p 2041-2044 (2010)
110. Liu, Z.; Bucknall, D. G.; and Allen, M. G., "Absorption Performance of Iodixanol-Imprinted Polymers in Aqueous and Blood Plasma Media," *Acta Biomaterialia*, vol.6, pp. 2003-2012 (2010)
111. English, B.A., and Allen, M.G., "Control of ignition delay in microfabricated hot-wire igniters: Simulation, fabrication, and experimental results," *Sensors and Actuators, A: Physical*, v 172, n 2, p 483-490 (2011)
112. Kim, J.K., Allen, M.G., and Yoon, Y.K., "Computer-controlled dynamic mode multidirectional UV lithography for 3D microfabrication," *Journal of Micromechanics and Microengineering*, v 21, n 3 (2011)
113. Yoon, Y.K., Park, J.H., Lee, J.W., Prausnitz, M.R., and Allen, M.G., "A thermal microjet system with tapered micronozzles fabricated by inclined UV lithography for transdermal drug delivery," *Journal of Micromechanics and Microengineering*, v 21, n 2 (2011)
114. Rajaraman, S., Choi, S.O., McClain, M.A., Ross, J.D. Laplaca, M.C., and Allen, M.G., "Metal-transfer-micromolded three-dimensional microelectrode arrays for in-vitro brain-slice recordings," *Journal of Microelectromechanical Systems*, v 20, n 2, p 396-409 (2011)

115. Song, C., Aiyar, A.R., Kim, S.-H., and Allen, M.G., "Exploitation of aeroelastic effects for drift reduction in an all-polymer air flow sensor," *Sensors and Actuators: A Physical*, v 165, n 1, p 66-72 (2011)
116. Choi, S.K., Yoon, Y.K., Kim, S.H., and Allen, M.G., "Nonlinear sensitivity enhancement of resonant microsensors and its application to low power magnetic sensing," *Journal of Micromechanics and Microengineering*, v 21, n 4 (2011)
117. Armutlulu, A., Fang, Y., Kim, S.H., Ji, C.H., Bidstrup Allen, S.A., and Allen, M.G., "A MEMS-enabled 3D zinc-air microbattery with improved discharge characteristics based on a multilayer metallic substructure," *Journal of Micromechanics and Microengineering*, v 21, n 10 (2011)
118. Wu, X.S., Kim, S.H., Ji, C.H., and Allen, M.G., "A solid hydraulically amplified piezoelectric microvalve," *Journal of Micromechanics and Microengineering*, v 21, n 9 (2011)
119. Liu, Z., Bucknall, D.G., and Allen, M.G., "Inclined nanoimprinting lithography-based 3D nanofabrication," *Journal of Micromechanics and Microengineering*, v 21, n 6, p 065036 (11 pp.) (2011)
120. Zhang, S., Liu, Z., Bucknall, D.G., He, L., Hong, K., Mays, J.W., and Allen, M.G., "Thermally switchable thin films of an ABC triblock copolymer of poly(n-butyl methacrylate)-poly(methyl methacrylate)-poly(2-fluoroethyl methacrylate)," *Applied Surface Science*, v 257, n 22, p 9673-7 (2011)
121. Rajaraman, S., Bragg, J.A., Ross, J.D., and Allen, M.G., "Micromachined three-dimensional electrode arrays for transcutaneous nerve tracking," *Journal of Micromechanics and Microengineering*, v 21, n 8 (2011)
122. Lee, J.W., Gadiraju, P., Park, J.H., Allen, M.G., and Prausnitz, M.R., "Microsecond thermal ablation of skin for transdermal drug delivery," *Journal of Controlled Release*, v 154, n 1, p 58-68 (2011)
123. Liu, Z., Bucknall, D.G., and Allen, M.G., "Inclined nanoimprinting lithography for 3D nanopatterning," *Nanotechnology*, v 22, n 22 (2011)
124. Choi, S.O., Kim, Y.C., Lee, J.W., Park, J.H., Prausnitz, M.R., and Allen, M.G., "Intracellular protein delivery and gene transfection by electroporation using a microneedle electrode array," *Small*, v 8, n 7, p 1081-1091 (2012)
125. J. Kim, M. Kim, F. Herrault, J. Y. Park, and M. G. Allen, "Highly-laminated soft magnetic electroplated CoNiFe thick films," *IEEE Magnetics Letters*, v 4, Nov. 2013.
126. A. Armutlulu, S.A. Bidstrup Allen, M.G. Allen, "Microfabricated Ni-based Electrodes for High-Power Battery Applications," *Journal of Micromechanics and Microengineering*, v 23, n 11, p 1-7, Nov. 2013.
127. P. Wang, S.-J. Paik, S. Chen, S. Rajaraman, S.-H. Kim, and M. G. Allen, "Fabrication and Characterization of Polymer Hollow Microneedle Array Using UV Lithography into Micromolds," *Journal of Microelectromechanical Systems*, v 22, n 5, p 1041-1053, Oct. 2013.
128. J. Kim, J.K. Kim, M. Kim, F. Herrault, and M.G. Allen, "Microfabrication of toroidal inductors integrated with nanolaminated ferromagnetic metallic cores," *Journal of Microelectromechanical Systems*, v 23, n 11, (Cover Image), p 1-9, Oct. 2013.
129. J. Kim, M. Kim, P. Galle, F. Herrault, R. Shafer, J.Y. Park, and M.G. Allen, "Nanolaminated permalloy core for high-flux high-frequency ultracompact power conversion," *Transactions on Power Electronics*, v 28, n 9, p 4376-4383, Sept. 2013.
130. M. Araghchini, J. Chen, V. Doan-Nguyen, D.V. Harburg, D. Jin, J. Kim, M. Kim, S. Lim, B. Lu, D. Piedra, J. Qiu, J. Ranson, M. Sun, X. Yu, H. Yun, M.G. Allen, J.A. del Alamo, G. DesGroseilliers, F. Herrault, J.H. Lang, C.G. Levey, C.B. Murray, D. Otten, T. Palacios, D.J. Perreault, and C.R. Sullivan, "A technology overview of the powerchip development program," *Transactions on Power Electronics*, v 28, n 9, p 4182-4201, Sept. 2013.
131. M. Kim, J. Kim, F. Herrault, R.H. Shafer, and M.G. Allen, "A MEMS lamination technology based on sequential multilayer electrodeposition," *Journal of Microelectromechanical Systems*, v 23, n 9 (IOP selected paper), p 1-9, Aug. 2013.
132. W. Xu, M.G. Allen, "Deformable Strain Sensors Based on Patterned MWCNTs/ Polydimethylsiloxane Composites," *Journal of Polymer Science, Part B: Polymer Physics*, v 51, p 1505-1512, Aug. 2013.

- 133.X. Yu, M. Kim, F. Herrault, C.-H. Ji, J. Kim, and M.G. Allen, "Silicon-Embedding Approaches to 3-D Toroidal Inductor Fabrication," *Journal of Microelectromechanical Systems*, v 22, n 3, June 2013.
- 134.J.K. Kim, F. Herrault, X. Yu, M. Kim, R.H. Shafer, and M.G. Allen, "Microfabrication of air core inductors with metal-encapsulated polymer vias," *Journal of Micromechanics and Microengineering*, v 23, n 3, p 035006 (7 pp.), March 2013.
- 135.P.-C. Wang, S.-J. Paik, S.-H. Kim, M.G. Allen, "Hypodermic-Needle-Like Hollow Polymer Microneedle Array: Fabrication and Characterization," *Journal of Microelectromechanical Systems*, v 23, n 4, p 991-998, 2014.
- 136.B.A. Peterson, O.D. Oniku, W.C. Patterson, D. Le Roy, A. Garraud, F. Herrault, N.M. Dempsey, D.P. Arnold, M.G. Allen, "Technology Development for Short-period Magnetic Undulators," *Physics Procedia*, v 52, p 36-45, June 2014.
- 137.M. Luo, A. W. Martinez, C. Song, F. Herrault, and M. G. Allen, "A Microfabricated Wireless RF Pressure Sensor Made Completely of Biodegradable Materials," *Journal of Microelectromechanical Systems*, v 23, i 1, p 4-13, Feb. 2014.
- 138.N. Naik, J. Caves, E.L. Chaikof, and M.G. Allen, "Generation of Spatially Aligned Collagen Fiber Networks Through Microtransfer Molding," *Advanced Healthcare Materials*, vol. 3, no. 3, p. 367-374, 2014.
- 139.M. Araghchini, X. Yu, M. Kim, J. Qiu, F. Herrault, C.R. Sullivan, M.G. Allen, and J. Lang, "Modeling and Measured Verification of Stored Energy and Loss in MEMS Toroidal Inductors," *IEEE Trans. Industry Applications*, vol. 50, no. 3, p. 2029-2038, 2014
- 140.H. Yun, X. Liu, T. Paik, D. Palanisamy, J. Kim, W.D. Vogel, A.J. Viescas, J. Chen, G.C. Papaefthymiou, J.M. Kikkawa, M.G. Allen, C.B. Murray, "Size- and Composition-Dependent Radio Frequency Magnetic Permeability of Iron Oxide Nanocrystals," *ACS Nano*, vol. 8, no. 12, p. 12323-12337, 2014
- 141.M. Tsang, A. Armutlulu, F. Herrault, R.H. Shafer, S. Allen, and M.G. Allen, "Development of Electroplated Magnesium Microstructures for Biodegradable Devices and Energy Sources," *J. Microelectromechanical Systems*, vol. 23, no. 6, p. 1281-1289
- 142.C. Ji, F. Herrault, and M.G. Allen, "Sidewall Lithography of Micron-Sized Features in High Aspect Ratio Meso-scale Channels using a Three-Dimensional Assembled Mask," *Micro and Nano Systems Letters*, vol. 2, no. 1, p. 1-5
- 143.B.A. Peterson, O.D. Oniku, W.C. Patterson, D. Le Roy, A. Garraud, F. Herrault, N.M. Dempsey, D.P. Arnold, and M.G. Allen, "Technology Development for Short-Period Magnetic Undulators," *Physics Procedia*, vol. 52, p. 36-45, 2014.
- 144.J. Kim, C. Kim, and M.G. Allen, "Fabrication of 3D Nanostructures by Multidirectional UV Lithography and Predictive Structural Modeling," *J. Micromechanics Microengineering*, vol. 25, no. 2, p. 025017ff, 2015.
- 145.A. Armutlulu, L.A. Bottomley, S. Allen, and M.G. Allen, "Supercapacitor Electrodes Based on Three-Dimensional Copper Structures with Precisely Controlled Dimensions," *ChemElectroChem*, vol. 2, no. 2, p. 236-245, 2015.
- 146.M. Kim, J. Kim, and M.G. Allen, "Nanopatterned Surfaces Based on Template-Assisted Multilayer Electrodeposition," *Small*, vol. 11, no. 16, p. 1912-1918, 2015.
- 147.W. Shen, L. Karumbaiah, X. Liu, T. Saxena, S. Chen, R. Patkar, R.V. Bellamkonda, M.G. Allen, "Extracellular matrix-based intracortical microelectrodes: Toward a microfabricated neural interface based on natural materials," *Microsystems and Nanoengineering* (Nature Publishing Group), vol. 1, 2015.
- 148.N. Naik, D. Hanjaya-Putra, C.A. Haller, M.G. Allen, E.L. Chaikof, "Rapid homogeneous endothelialization of high aspect ratio microvascular networks," *Biomedical Microdevices*, vol. 17, no. 4, p. 1-7, 2015.
- 149.S.J. Lee, H.S. Yoon, X. Xuan, J.Y. Park, S.J. Paik, M.G. Allen, "A patch type non-enzymatic biosensor based on 3D SUS micro-needle electrode array for minimally invasive continuous glucose monitoring," *Sensors and Actuators B: Chemical*, 2015.

150. J. Kim, M. Kim, F. Herrault, J.Y. Park, and M.G. Allen, "Electrodeposited Nanolaminated CoNiFe Cores for Ultracompact DC-DC Power Conversion," *IEEE Transactions on Power Electronics*, vol. 30, no. 9, p. 5078-5087, 2015.
151. J. Kim, M. Kim, J.K. Kim, and M.G. Allen, "Anisotropic nanolaminated CoNiFe cores integrated into microinductors for high-frequency dc-dc power conversion," *Journal of Physics D: Applied Physics*, vol. 48, no. 46, p. 462001ff, 2015.
152. M. Tsang, A. Armutlulu, A. Martinez, S.A.B. Allen, and M.G. Allen, "Biodegradable Magnesium/Iron Batteries with Polycaprolactone Encapsulation: A Microfabricated Power Source For Transient Implantable Devices," *Microsystems and Nanoengineering* (www.nature.com/micronano), 12 October, 2015.
153. W. Shen, L. Karumbaiah, X. Liu, T. Saxena, S. Chen, R. Patkar, R. Bellamkonda, and M.G. Allen, "Extracellular matrix-based intracortical microelectrodes: Toward a microfabricated neural interface based on natural materials," *Microsystems and Nanoengineering* (www.nature.com/micronano) 15010, 29 June 2015.
154. N. Naik, D. Putra, C. Haller, M.G. Allen, and E. Chaikof, "Rapid homogeneous endothelialization of high aspect ratio microvascular networks," *Biomedical Microdevices*, vol. 17, no. 4, p. 1-7, 2015.
155. Y. Li, J. Kim, M. Kim, A. Armutlulu, and M.G. Allen, "Thick Multilayered Micromachined Permanent Magnets With Preserved Magnetic Properties," *IEEE J. Microelectromechanical Systems*, vol. pp, no. 99, p. 1-10, 2016.
156. H. Yun, J.K. Kim, T. Paik, L. Meng, J. Kikkawa, M.G. Allen, and C.B. Murray, Alternate current magnetic property characterization of nonstoichiometric zinc ferrite nanocrystals for inductor fabrication via a solution based process, *J. Appl. Phys* 119, 113901, 2016.
157. S. Park, S.O. Choi, S.J. Paik, M.G. Allen, and M.R. Prausnitz, "Intracellular delivery of molecules using microfabricated nanoneedle arrays," *Biomedical Microdevices*, vol. 18, no. 10, 2016.
158. S.J. Lee, H.S. Yoon, X. Xuan, J.Y. Park, S.J. Paik, and M.G. Allen, "A Patch-Type Non-Enzymatic Biosensor Based On 3D SUS Microneedle Electrode Array for Minimally Invasive Continuous Glucose Monitoring," *Sensors and Actuators B: Chemical*, v. 222, p. 1144-1151, 2016.
159. J.K. Kim, Y.K. Yoon, and M.G. Allen, "Computer numerical control (CNC) lithography: light-motion synchronized UV-LED lithography for 3D microfabrication," *J. Micromechanics Microengineering*, vol. 26, no. 3, p. 035003ff, 2016.
160. Klosterhoff B.S., Tsang M., She D., Ong K.G., Allen M.G., Willett N.J., and Guldberg R.E., "Implantable Sensors for Regenerative Medicine," *Journal of Biomechanical Engineering*, 139(2), 021009 (11 p.) 2017
161. B.S. Klosterhoff, K.G. Ong, L. Krishnan, K.M. Hetzendorfer, Y.H. Chang, M.G. Allen, R.E. Guldberg, and N.J. Willett, "Wireless Implantable Sensor for Noninvasive, Longitudinal Quantification of Axial Strain Across Rodent Long Bone Defects," *Journal of Biomechanical Engineering*, 139(11), 111004ff, 2017
162. Y Li, M Kim, and MG Allen, "A single mask process for the realization of fully-isolated, dual-height MEMS metallic structures separated by narrow gaps," *Journal of Micromechanics and Microengineering*, vol. 28, no. 2, p. 027001ff, 2018
163. Flavia Vitale, Wendy Shen, Nicolette Driscoll, Justin C. Burrell, Andrew G. Richardson, Oladayo Adewole, Brendan Murphy, Akshay Ananthakrishnan, Hanju Oh, Theodore Wang, Timothy H. Lucas, D. Kacy Cullen, Mark G. Allen, Brian Litt, "Biomimetic extracellular matrix coatings improve the chronic biocompatibility of microfabricated subdural microelectrode arrays." *PloS one*, 13(11), e0206137. (2018)
164. Oh H, Lee SW, Kim M, Lee WS, Seong M, Joh H, Allen MG, May G, Bakir M, Oh SJ. Designing Surface Chemistry of Silver Nanocrystals for Radio-frequency Circuit Applications. *ACS applied materials & interfaces*. 2018
165. Shen, W., Das, S., Vitale, F., Richardson, A., Ananthakrishnan, A., Struzyna, L.A., Brown, D.P., Song, N., Ramkumar, M., Lucas, T., Cullen, D.K., Litt, B., and Allen, M.G., "Microfabricated intracortical extracellular matrix-microelectrodes for improving neural interfaces", *Microsystems & Nanoengineering*, 4(1), p.30ff (2018).

166. Synodis, M., Kim, M., Allen, M.G. and Bidstrup-Allen, S.A., 3-D lithium ion battery fabrication via scalable stacked multilayer electrodeposition. *Journal of Micromechanics and Microengineering*, vol. 29, 055006ff, (2019)
167. She, D., Tsang, M. and Allen, M., Biodegradable batteries with immobilized electrolyte for transient MEMS. *Biomedical Microdevices*, 21(1), p.17ff (2019)
168. Z. Cunningham, D. She, K. Mitchell, D. Wallace, M.G. Allen, MJ. Falk, "Development of a minimally invasive muscle O₂ nanosensor for Mitochondrial Myopathy (S32. 009)," *Neurology* 92 (15 Supplement), S32. 009, (2019)
169. She D, Allen MG, "A Micromachined Freestanding Electrochemical Sensor for Measuring Dissolved Oxygen," *IEEE Journal of Microelectromechanical Systems*, 28(3), p.521-31 (2019)
170. Zhang T, Tsang M, Du L, Kim M, Allen MG, "Electrical Interconnects Fabricated From Biodegradable Conductive Polymer Composites," *IEEE Transactions on Components, Packaging and Manufacturing Technology*. 9(5):822-9 (2019)
171. Du, L. and Allen, M.G., "CMOS compatible hermetic packages based on localized fusion bonding of fused silica," *IEEE Journal of Microelectromechanical Systems*, 28(4), pp.656-665 (2019)
172. Kim, M. and Allen, M.G., "Interlamination insulation design considerations for laminated magnetics operating at high frequencies," *IEEE Transactions on Magnetics*, 55(8), pp.1-11 (2019)
173. Mahmoodi, S.R., Xie, P., Allen, M.G. and Javanmard, M., "Multiwell Plate Impedance Analysis of a Nanowell Array Sensor for Label-Free Detection of Cytokines in Mouse Serum," *IEEE Sensors Letters* 4(2), p.1-4 (2020)
174. Synodis, M., Pikul, J., Allen, S.A.B. and Allen, M.G., "Vertically integrated high voltage Zn-Air batteries enabled by stacked multilayer electrodeposition," *Journal of Power Sources*, 449, p.227566 (2020)
175. Ananthakrishnan, A. and Allen, M.G., "All-Passive Hardware Implementation of Multilayer Perceptron Classifiers," *IEEE Transactions on Neural Networks and Learning Systems*, 10.1109/TNNLS.2020.3016901 (2020)
176. D. She and M. G. Allen, "A Self-Powered, Biodegradable Dissolved Oxygen Microsensor," *IEEE Journal of Microelectromechanical Systems*, vol. 29, no. 5, pp. 1074-1078, (2020)
177. M. Synodis, J.B. Pyo, M. Kim, H. Oh, X. Wang and M. G. Allen, "Fully Additive Fabrication of Electrically Anisotropic Multilayer Materials Based on Sequential Electrodeposition," *IEEE Journal of Microelectromechanical Systems*, vol. 29, no. 6, pp. 1510-1517, (2020)
178. Xie, P., Song, N., Shen, W., Allen, M.G., and Javanmard, M., "A ten-minute, single step, label-free, sample-to-answer assay for qualitative detection of cytokines in serum at femtomolar levels," *Biomedical Microdevices*, 22(4), pp.1-9 (2020)
179. M. Synodis, J.B. Pyo, M. Kim, X. Wang, and M. G. Allen, "Lithographically patterned polypyrrole multilayer microstructures via sidewall-controlled electropolymerization," *Journal of Micromechanics and Microengineering*, vol. 31, no. 2, 025008 (2020)
180. Zhang, T. and Allen, M.G., "High winding ratio, high frequency, ultracompact step-up transformers with laminated metallic magnetic cores," *Microelectronic Engineering*, 241, p.111547 (2021)
181. Ananthakrishnan, A., Du, X., and Allen, M.G., "Water-based resistive switches for neuromorphic long-range connections," *J. Physics D: Applied Physics*, vol. 54, no. 22, 225104 (2021)
182. Hao, H., Du, L., Richardson, A.G., Lucas, T.H., Allen, M.G., and Aflatouni, F., "A Wireless Artificial Mechanoreceptor in 180-nm CMOS," *IEEE Transactions on Microwave Theory and Techniques*, 10.1109/TMTT.2021.3072398 (2021)
183. Mahmoodi, S.R., Xie, P., Zachs, D.P., Peterson, E.J., Graham, R.S., Kaiser, C.R., Lim, H.H., Allen, M.G. and Javanmard, M., "Single-step label-free nanowell immunoassay accurately quantifies serum stress hormones within minutes," *Science Advances*, 7(27), p.eabf4401 (2021).

184. Song, N., Xie, P., Shen, W., Oh, H., Zhang, Y., Vitale, F., Javanmard, M. and Allen, M.G., "A microwell-based impedance sensor on an insertable microneedle for real-time in vivo cytokine detection," *Microsystems & Nanoengineering*, 7(1), pp.1-12 (2021).
185. J. B. Pyo, X. Wang, M. Kim, H. Oh, R. Kauffman and M. G. Allen, "Suppression of eddy current loss in multilayer NiFe-polypyrrole magnetic cores fabricated using a continuous electrodeposition process," in *IEEE Journal of Emerging and Selected Topics in Power Electronics*, doi: 10.1109/JESTPE.2022.3166849 (2022).
186. Zhang, J., Huang, Y., Yang, Q., Venkatesh, V., Synodis, M., Pikul, J.H., Bidstrup Allen, S.A. and Allen, M.G., "High-Energy-Density Zinc–Air Microbatteries with Lean PVA–KOH–K₂CO₃ Gel Electrolytes," *ACS Applied Materials & Interfaces* (2023).
187. Venkatesh, V., Yang, Q., Zhang, J., Huang, Y., Pikul, J.H., Allen, S.A.B., and Allen, M.G., "Zinc Film Anodes for Air Microbatteries: Fabrication, Approaches, and Utilization Optimization." *Journal of Micromechanics and Microengineering* (2023). (doi: 10.1088/1361-6439/acbc2d)

III.C. Conference Proceedings

1. Mehregany, M., Allen, M.G., and Senturia, S.D., "The Use of Microfabricated Structures for the Measurement of Mechanical Properties and Adhesion of Polymer Films," Technical Digest, IEEE Solid State Sensors Workshop, Hilton Head, SC, pp. 58-61, June, 1986.
2. Allen, M.G. and Senturia, S.D., "Microfabricated Structures for the Measurement of Adhesion and Mechanical Properties of Polymer Films," Proceedings of the American Chemical Society Division of Polymeric Materials: Science and Engineering, Denver, Colorado, vol. 56, pp. 735-739, April 1987.
3. Allen, M.G. and Senturia, S.D., "Polyimide-Metal Adhesion Measurement Using Microfabricated Structures," Proceedings of the Society of Plastics Engineers Annual Technical Conference, Atlanta, Georgia, vol. 34, pp. 997-999, April, 1988.
4. Allen, M.G. and Senturia, S.D., "Measurement of Polyimide Interlayer Adhesion Using Microfabricated Structures," presented at the Symposium on Polymeric Materials for Electronic Packaging of the American Chemical Society, Proceedings of the American Chemical Society Division of Polymeric Materials: Science and Engineering, Los Angeles, California, vol. 59, pp. 352-356, September, 1988.
5. Maseeh, F., Schmidt, M.A., Allen, M.G., and Senturia, S.D., "Calibrated Measurements of Elastic Limit, Modulus, and Residual Stress of Thin Films Using Micromachined Suspended Membranes," Technical Digest, IEEE Solid State Sensors Workshop, Hilton Head, SC, pp. 84-87, June, 1988.
6. Allen, M.G., Scheidl, M., and Smith, R.L., "Design and Fabrication of Movable Silicon Plates Suspended by Flexible Supports," Proceedings of the IEEE Microelectromechanical Systems Workshop, Salt Lake City, UT, pp. 76-81, February, 1989.
7. Allen, M.G., Nikolich, A., Scheidl, M., and Smith, R.L., "Movable Micromachined Silicon Plates With Integrated Position Sensing," Proceedings of the Fifth International Conference On Solid State Sensors and Actuators (Transducers '89), Montreux, Switzerland, June, 1989.
8. Nagarkar, P.V., Searson, P.C., Belluci, F., Allen, M.G., and Latanision, R.M., "Interfacial Interactions Affecting Polyimide Reliability," Proceedings of the 39th Electronic Components Conference, Houston, Texas, pp. 160-166, May, 1989.
9. Allen, M.G., Nagarkar, P., and Senturia, S.D., "An XPS Analysis of Polyimide/Substrate Fracture Surfaces," Proceedings of the Society of Plastics Engineers Annual Technical Conference, vol. 36, Dallas, Texas, May 1990.
10. Kim, Y.W. and Allen, M.G., "Surface Micromachined Platforms Using Electroplated Sacrificial Layers," Proceedings of the Sixth International Conference On Solid State Sensors and Actuators (Transducers '91), San Francisco, CA, pp. 651-654, June, 1991.

11. Frazier, A.B., Babb, J.W., Allen, M.G., and Taylor, D.G., "Design and Fabrication of Electroplated Micromotor Structures," American Society of Mechanical Engineers Dynamic Systems and Control Division, vol. 32, pp. 135-148, ASME, New York, NY, 1991 (from the 1991 ASME Winter Annual Meeting, Atlanta, GA).
12. Rashidian, B. and Allen, M.G., "Integrated Piezoelectric Polymers for Microsensing and Microactuation Applications," American Society of Mechanical Engineers Dynamic Systems and Control Division, vol. 32, pp. 171-179, ASME, New York, NY, 1991 (from the 1991 ASME Winter Annual Meeting, Atlanta, GA).
13. Ahn, C.H. and Allen, M.G., "Measurement of Polymer Mechanical Properties Using Microfabricated Resonant Structures," Proceedings of the American Chemical Society Division of Polymeric Materials: Science and Engineering, Atlanta, Georgia, vol. 64, 1991.
14. Camperi-Ginestet, C., Hargis, M., Jokerst, N. M., Allen, M., and Drabik, T., "Alignable Epitaxial Lift Off GaAs Materials Using Polyimide Diaphragms," Proceedings of the Integrated Photonics Research Topical Meeting, vol. 8, pp. 27-28, IEEE and Optical Society of America, Monterey, California, April, 1991.
15. Frazier, A.B. and Allen, M.G., "Mechanical and Piezoresistive Properties of Graphite-Filled Polyimide for Hybrid Micromachined Systems," ISHM '92 Proceedings; Proceedings of the 1992 International Symposium on Microelectronics (SPIE vol. 1847), Los Angeles, CA, pp. 41-46, October, 1992. **(best paper of symposium)**
16. Frazier, A.B., Kahn, M.R., and Allen, M.G., "Mechanical and Piezoresistive Properties of Graphite-Filled Polyimide," in Materials Research Society Symposium Series no. 317, Smart Materials Fabrication and Materials for Micro-Electro-Mechanical Systems, pp. 295-301, Materials Research Society Press, Pittsburgh, PA, 1992 (from the 1992 MRS Spring Meeting, San Francisco, California, April, 1992).
17. Ahn, C.H. and Allen, M.G., "A Fully Integrated Micromagnetic Actuator with a Multilevel Meander Inductive Core," Technical Digest, IEEE Solid State Sensor and Actuator Workshop, Hilton Head, SC, pp. 14-18, June, 1992.
18. Camperi-Ginestet, C., Jokerst, N.M., Augustine, G., Hargis, M., and Allen, M.G., "Alignable Deposition of Thin Film Semiconductor Materials for Integrated Micro-Opto-Electronic Systems," in Materials Research Society Symposium Proceedings no. 317, Smart Materials Fabrication and Materials for Micro-Electro-Mechanical Systems, pp. 131-136, Materials Research Society Press, Pittsburgh, PA, 1992 (from the 1992 MRS Spring Meeting, San Francisco, CA, April, 1992).
19. Nami, Z., Ahn, C.H., and Allen, M.G., "Magnetic Analysis of an Overlapped Cantilever Beam Using Finite Elements," American Society of Mechanical Engineers Dynamic Systems and Control Division, vol. 46, pp. 1-6, ASME, New York, NY, 1993 (from the 1993 ASME Winter Annual Meeting, New Orleans, LA).
20. Kim, Y.W., Allen, M.G., and Hartman, N.F., "Micromechanically Based Integrated Optic Modulators and Switches," Proceedings of the SPIE, Boston, MA, vol. 1793, pp. 183-189, September, 1992.
21. Ahn, C.H. and Allen, M.G., "A Fully Integrated Micromagnetic Actuator with a Multilevel Meander Inductive Core," Technical Digest, IEEE Solid State Sensor and Actuator Workshop, Hilton Head, SC, pp. 14-18, June, 1992.
22. Ahn, C.H., Kim, Y.J., and Allen, M.G., "A Planar Variable Reluctance Micromotor with Fully Integrated Stator and Wrapped Coils," Proceedings of the IEEE Microelectromechanical Systems Workshop, Fort Lauderdale, FL, pp. 1-6, February, 1993.
23. Rashidian, B. and Allen, M.G., "Electrothermal Microactuators Based On Dielectric Loss Heating," Proceedings of the IEEE Microelectromechanical Systems Workshop, Fort Lauderdale, FL, pp. 24-29, February, 1993.
24. Frazier, A.B., O'Brien, D., and Allen, M.G., "Two Dimensional Metallic Microelectrode Arrays for Recording and Stimulation of Neurons," Proceedings of the IEEE Microelectromechanical Systems Workshop, Fort Lauderdale, FL, pp. 195-200, February, 1993.
25. Allen, M.G., "Fabrication of Thick Electroplated Microstructures Using Polyimide Electroplating Molds," Proceedings of the Seventh International Conference On Solid State Sensors and Actuators (Transducers '93), Yokohama, Japan, pp. 60-65, June, 1993. **(invited)**

26. Ahn, C.H. and Allen, M.G., "A Fully Integrated Micromachined Toroidal Inductor With A Nickel-Iron Magnetic Core," Proceedings of the Seventh International Conference On Solid State Sensors and Actuators (Transducers '93), Yokohama, Japan, pp. 70-73, June, 1993.
27. Wilkinson, S., Kim, Y. W., Allen, M. G., and Jokerst, N. M., "Integration of Thin Film Compound Semiconductor Photonic Devices Onto Micromachined Movable Platforms," Proceedings of the Seventh International Conference On Solid State Sensors and Actuators (Transducers '93), Yokohama, Japan, pp. 148-151, June, 1993.
28. Wilkinson, S., Kim, Y., Jokerst, N., and Allen, M.G., "Integration of Thin Film Devices Onto Micromachined Movable Platforms," Proceedings of the IEEE Lasers and Electro Optics Society Annual Meeting, pp. 98-99, San Jose, CA, November, 1993.
29. Ahn, C.H., and Allen, M.G., "A Comparison of Two Micromachined Inductors (bar-type and meander-type) for Fully Integrated Boost DC/DC Power Converters," Proceedings of the Ninth Annual IEEE Applied Power Electronics Conference, Orlando, FL, vol. 1, pp. 10-16, February, 1994. **(invited plenary address)**
30. Wang, Y., Fike, S., Allen, M.G., and Jokerst, N.M., "Measurement of Adhesion of GaAs Thin Films Using the Blister Test," Proceedings of the Annual Meeting of the Adhesion Society, Orlando, FL, February, 1994.
31. Hodge, T.C., Bidstrup, S.A., Kohl, P.A., Lee, J.B., and Allen, M.G., "An In-Situ Measurement Technique for Through-Plane Thermal Properties of Thin Dielectric Films," Proceedings of the 1994 International Conference and Exhibition on Multichip Modules (SPIE vol. 2256), Denver, CO, pp. 344-349, 1994.
32. Hodge, T.C., Kohl, P. A., Bidstrup, S. A., Lee, J. B., and Allen, M. G., "In-Situ Thermal Expansion Measurements of Interlevel Dielectric Polymer Films," Fifth International Conference on Polyimide Films, Ellenville, NY, November, 1994.
33. Ahn, C.H. and Allen, M.G., "A Fully Integrated Micromachined Magnetic Particle Manipulator and Separator," Proceedings of the IEEE Microelectromechanical Systems Workshop, Oiso, Japan, pp. 91-96, 1994.
34. Hodge, T.C., Lin, L., Lee, J.B., Bidstrup, S.A., Kohl, P.A., and Allen, M.G., "Anisotropy in Thermal, Electrical and Mechanical Properties of Spin-Coated Polymer Dielectrics," in Materials Research Society Symposium Proceedings no. 338, Materials Reliability in Microelectronics, pp. 577-587, Pittsburgh, PA, 1994 (from the 1994 MRS Spring Meeting, San Francisco, CA).
35. Lee, J.B., Chen, Z., Allen, M.G., Rohatgi, A., and Arya, R., "A High Voltage Solar Cell Array as an Electrostatic MEMS Power Supply," Proceedings of the IEEE Microelectromechanical Systems Workshop, Oiso, Japan, pp. 331-336, 1994.
36. Allen, M.G., "Design, Fabrication, and Application of Magnetic Microactuators," Proceedings of the 5th International Symposium on Micro Machine and Human Science, Nagoya, Japan, p. 5, October, 1994. **(invited plenary address)**
37. Coe, D., Trautman, M.A., Allen, M.G., and Glezer, A., "Micromachined Jets for Manipulation of Macro Flows," Technical Digest, Solid State Sensor and Actuator Workshop, Hilton Head, SC, pp. 243-247, 1994.
38. Schneider, M., Castagnetti, R., Allen, M.G., and Baltes, H., "Integrated Flux Concentrator Improves CMOS Magnetotransistors," Proceedings of the IEEE Microelectromechanical Systems Workshop, Amsterdam, Netherlands, pp. 151-156, 1995.
39. Ahn, C.H. and Allen, M.G., "Fluid Micropumps Based on Rotary Magnetic Microactuators," Proceedings of the IEEE Microelectromechanical Systems Workshop, Amsterdam, Netherlands, pp. 408-412, 1995.
40. Coe, D.J., Allen, M.G., Smith, B.L., and Glezer, A., "Addressable Micromachined Jet Arrays," Proceedings of the 8th International Conference on Solid State Sensors and Actuators (Transducers '95), Stockholm, Sweden, vol. 2, pp. 329-332, June, 1995.
41. Ahn, C.H. and Allen, M.G., "Micromachined Planar Inductors with Electroplated Nickel-Iron Permalloy Cores (spiral type, solenoid type, and toroidal-meander type)", Proceedings of the Fourth International Symposium on Magnetic Materials, Processes, and Devices (Electrochemical Society Fall Meeting), Chicago, Illinois, pp. 411-425, October, 1995.

42. Allen, M.G., "Integrated Inductors for Low Cost Electronic Packages", Technical Digest, 1995 International Electron Devices Meeting, Washington, DC, pp. 137-141, December 1995. **(invited address to Novel Technologies and Opportunities Symposium of IEDM)**.
43. Park, J.Y. and Allen, M.G., "A Comparison of Micromachined Inductors with Different Magnetic Core Materials," Proceedings of the 46th Electronic Components and Technology Conference, Orlando, FL, pp. 120-125, May, 1996.
44. Chahal, P., Tummala, R., Allen, M.G., and Swaminathan, M., "A Novel Integrated Decoupling Capacitor for MCM-L Technology," Proceedings of the 46th Electronic Components and Technology Conference, Orlando, FL, pp. 125-132, May, 1996.
45. Baker, M., Brand, O., Allen, M., and May, G., "A Micromachined Etch Rate Sensor for In-Situ Monitoring of Plasma Etching," Proceedings of the 54th Device Research Conference, Santa Barbara, CA, pp. 120-121, June, 1996
46. Baker, M., Brand, O., Allen, M., and May, G., "A Micromachined Sensor for In-Situ Monitoring of Wafer State in Plasma Etching," Proceedings of the SPIE, vol. 2876, Austin, TX, pp. 98-106, October, 1996.
47. Lagorce, L.K. and Allen, M.G., "Ferrite Filled Polymers for Integrated Power Conversion Devices," IMAPS Proceedings of the 1996 International Symposium on Microelectronics (SPIE vol. 2920), Minneapolis, MN, pp. 176-180, October, 1996
48. Park, J.Y. and Allen, M.G., "A Comparison of Micromachined Inductors with Different Magnetic Core Materials," Proceedings of the 46th Electronic Components and Technology Conference, Orlando, FL, pp. 375-381, 1996.
49. Park, J.Y. and Allen, M.G., "High Current Integrated Microinductors and Microtransformers using Low Temperature Fabrication Processes," IMAPS Proceedings of the 1996 International Symposium on Microelectronics (SPIE vol. 2920), Minneapolis, MN, pp. 120-125, October, 1996.
50. Taylor, W.P., Allen, M.G., and Dauwalter, C.R., "A Fully Integrated Magnetically Actuated Micromachined Relay," IMAPS Proceedings of the 1996 International Symposium on Microelectronics (SPIE vol. 2920), Minneapolis, MN, p. 202-207, October, 1996 **(best paper)**.
51. Chahal, P., Tummala, R.R., and Allen, M.G., "Integrated Capacitors using Polymer-Ceramic Components for MCM-L", IMAPS Proceedings of the 1996 International Symposium on Microelectronics (SPIE vol. 2920), Minneapolis, MN, pp. 126-131, October, 1996.
52. Konaka, Y. and Allen, M.G., "Single and Multilayer Electroplated Microaccelerometers," Proceedings of the IEEE Microelectromechanical Systems Workshop, San Diego, CA, pp. 168-173, February, 1996.
53. Lagorce, L.K., and Allen, M.G., "Micromachined Polymer Magnets," Proceedings of the IEEE Microelectromechanical Systems Workshop, San Diego, CA, pp. 85-90, February, 1996.
54. Chung, C. and Allen, M.G., "Measurement of Mechanical Properties of Electroplated Nickel-Iron Alloys," American Society of Mechanical Engineers Dynamic Systems and Control Division, vol. 55, pp. 453-457, ASME, New York, NY, 1996 (from the 1996 ASME Winter Annual Meeting, Atlanta, GA).
55. Park, J.Y., Bhattacharya, S., and Allen, M.G., "Fully Integrated Passives Modules for Filter Applications using Low Temperature Processes," IMAPS Proceedings of the 1997 International Symposium on Microelectronics (SPIE vol. 3235), Philadelphia, PA, pp. 592-597, October, 1997.
56. Taylor, W.P., Dauwalter, C.R., and Allen, M.G., "Fully Integrated Magnetically Actuated Microrelays," Proceedings of the National Association of Relay Manufacturers, Orlando, FL, April, 1997 **(best paper)**.
57. Kim, Y.J. and Allen, M.G., "Surface Micromachined Solenoid Inductors for High Frequency Applications," IMAPS Proceedings of the 1997 International Symposium on Microelectronics (SPIE vol. 3235), Philadelphia, PA, pp. 1-6, October, 1997.
58. Lagorce, L., Brand, O., Kercher, D., Glezer, A., and Allen, M.G., "Micromachined Jets for Electronic Cooling Applications," IMAPS Proceedings of the 1997 International Symposium on Microelectronics (SPIE vol. 3235), Philadelphia, PA, pp. 592-597, October, 1997.

59. Taylor, W.P., Allen, M.G., and Dauwalter, C.R., "A Fully Integrated Magnetically Actuated Micromachined Relay," Technical Digest, Solid State Sensor and Actuator Workshop, Hilton Head, SC, pp. 231-234, June, 1996.
60. Brand, O., English, J.M., Bidstrup, S.A., and Allen, M.G., "Micromachined Viscosity Sensor for Real-Time Polymerization Monitoring," Proceedings of the 9th International Conference on Solid State Sensors and Actuators (Transducers '97), Chicago, IL, pp. 121-124, vol. 1, June, 1997
61. Taylor, W.P. and Allen, M.G., "Integrated Magnetic Microrelays: Normally Open, Normally Closed, and Multi-Pole Devices," Proceedings of the 9th International Conference on Solid State Sensors and Actuators (Transducers '97), Chicago, IL, pp. 1149-1152, vol.2, June, 1997
62. Taylor, W.P., Schneider, M., Baltes, H., and Allen, M.G., "Electroplated Soft Magnetic Materials for Microsensors and Microactuators," Proceedings of the 9th International Conference on Solid State Sensors and Actuators (Transducers '97), Chicago, IL, pp. 1445-8, vol. 2, June, 1997
63. Allen, M.G., "Micromachined Intermediate and High Frequency Inductors," Proceedings of 1997 IEEE International Symposium on Circuits and Systems ISCAS, Hong Kong, pp. 2829-32, vol.4, 1997.
64. Park, J.Y., and Allen, M.G., "Low Temperature Fabrication and Characterization of Integrated Packaging-Compatible, Ferrite-Core Magnetic Devices," Proceedings of the IEEE Applied Power Electronics Conference, Atlanta, GA, pp. 361-367, vol. 1, February, 1997.
65. Henry, S., McAllister, D., Prausnitz, M., and Allen, M.G., "Micromachined Needles for the Transdermal Delivery of Drugs," Proceedings of the IEEE Microelectromechanical Systems Conference, Heidelberg, Germany, pp. 494-498, January, 1998.
66. Park, J.Y., Han, S.H., Taylor, W.P., and Allen, M.G., "Fully Integrated Micromachined Inductors with Electroplated Anisotropic Magnetic Cores," Proceedings of the IEEE Applied Power Electronics Conference, Anaheim, CA, pp. 379-385, vol. 1, February, 1998.
67. Cros, F. and Allen, M.G., "High Aspect Ratio Structures Achieved by Sacrificial Conformal Coating," Technical Digest, Solid State Sensor and Actuator Workshop, Hilton Head, SC, pp. 261-264, June, 1998.
68. Agarwal, V., Chahal, P., Tummala, R.R., and Allen, M.G., "Improvements and Recent Advances in Nanocomposite Capacitors using a Colloidal Technique," Proceedings of the 48th Electronic Components and Technology Conference, p.165-70 (1998)
69. Chahal, P., Tummala, R.R., Allen, M.G., White, G.E., "Electroless Ni-P/Ni-W-P Thin-Film Resistors for MCM-L-based Technologies," Proceedings of the 48th Electronic Components and Technology Conference, p.232-9 (1998)
70. Chang, S.P., Lee, J.B., and Allen, M.G., "A Robust 8x8 Capacitive Pressure Sensor Array," American Society of Mechanical Engineers Winter Annual Meeting, Proc. MEMS 98, p. 513-517, 1998 (from the 1998 ASME Winter Annual Meeting, Anaheim, CA).
71. Allen, M.G., Taylor, W.P., and Kim, K., "Integrated Magnetic Microrelays: Multiple Device Configurations," Proceedings of the National Association of Relay Manufacturers, Orlando, FL, April, 1998 (**best paper**).
72. Park, J.Y., and Allen, M.G., "Electroplated and Screen-Printed Magnetic Materials Applicable to Micromachined Magnetic Devices," Proc. Micromachining & Microfabrication '98 Conference, SPIE, vol. 3512, pp. 154-167, Santa Clara, CA, 1998.
73. Park, J.Y., and Allen, M.G., "Micromachined High Q Inductors for High Frequency Applications," Proc. Micromachining & Microfabrication '98 Conference, SPIE, vol. 3514, pp. 218-228, Santa Clara, CA 1998.
74. McAllister, D.V.; Kaushik, S.; Patel, P.N.; Mayberry, J.L.; Allen, M.G.; Prausnitz, M., "Microneedles for transdermal delivery of macromolecules," Proceedings of the First Joint BMES/EMBS Conference: IEEE Engineering in Medicine and Biology 21st Annual Conference and the 1999 Annual Fall Meeting of the Biomedical Engineering Society, vol. 2, p. 836 (1999)
75. English, J.M.; Allen, M.G., "Wireless micromachined ceramic pressure sensors," Technical Digest. IEEE International MEMS 99 Conference: Twelfth IEEE International Conference on Micro Electro Mechanical Systems, p.511-16 (1999)

76. D.V. McAllister, F. Cros, S.P. Davis, L.M. Matta, M.R. Prausnitz, M.G. Allen, "Three Dimensional Hollow Microneedle and Microtube Arrays," Proc. Transducers '99, Sendai, Japan, vol. 2, p. 1098-1101 (1999)
77. D.S. Kercher, P. Seriburi, and M.G. Allen, "An Experimental Study of Microfabricated Nickel Spark Plugs," Proc. Transducers '99, Sendai, Japan, vol. 2, p. 1412-1415 (1999)
78. McAllister, D.V.; Kaushik, S.; Patel, P.N.; Mayberry, J.L.; Allen, M.G., "Microneedles for transdermal delivery of macromolecules," Proceedings of the First Joint IEEE BMES/EMBS Conference, p.836 vol.2 (1999)
79. Park, J.Y.; Allen, M.G., "Micromachined inductors with electroplated magnetically anisotropic alloy cores," Proceedings of the Fifth International Symposium on Magnetic Materials, Processes, and Devices Applications to Storage and Microelectromechanical Systems (MEMS), p.389-401 (1999)
80. Chung, C.C.; Allen, M.G., "Electrical isolation of bulk silicon MEMS devices via thermomigration," IEEE Thirteenth Annual International Conference on Micro Electro Mechanical Systems, p.153-7 (2000)
81. Kaiser, T.J.; Allen, M.G., "A micromachined pendulous oscillating gyroscopic accelerometer," Technical Digest. Solid-State Sensor and Actuator Conference, p.85-8 (2000)
82. Cros, F.; Kim, K.; Allen, M.G., "A single-mask process for micromachined magnetic devices," Solid-State Sensor and Actuator Conference, p.138-41 (2000)
83. O'Brien, D.P.; Nichols, T.R.; Allen, M.G., "Flexible microelectrode arrays with integrated insertion devices," 14th IEEE International Conference on Micro Electro Mechanical Systems, p.216-19 (2001)
84. Leichle, T.C.; von Arx, M.; Allen, M.G., "A micromachined resonant magnetic field sensor," 14th IEEE International Conference on Micro Electro Mechanical Systems, p.274-7 (2001)
85. Yoon, Y.K.; Chen, E.; Allen, M.G.; Laskar, J., "Embedded solenoid inductors for RF CMOS power amplifiers," 11th International Conference on Solid-State Sensors and Actuators, Digest of Technical Papers, p.1114-17 vol.2 (2001)
86. Koser, H.; Cros, F.; Allen, M.G.; Lang, J.H., "A high torque density MEMS magnetic induction machine," 11th International Conference on Solid-State Sensors and Actuators, Digest of Technical Papers, p.284-7 vol.1 (2001)
87. Fonseca, M.A.; English, J.M.; von Arx, M.; Allen, M.G., "High temperature characterization of ceramic pressure sensors," 11th International Conference on Solid-State Sensors and Actuators, Digest of Technical Papers, p.486-9 vol.1 (2001)
88. Marquardt, C.; Allen, M.G., "Fabrication of micromechanical structures of titania and titanium with electrophoretic deposition," 11th International Conference on Solid-State Sensors and Actuators, Digest of Technical Papers, p.616-19 vol.1 (2001)
89. Joung, Y.H., Allen, M.G., "Micromachined flexible interconnect for wafer level packaging" Micro-Electro-Mechanical Systems (MEMS). 2001 ASME International Mechanical Engineering Congress and Exposition, 2001, p 745-9
90. Yoon, Y.K., Allen, M.G., "A Pt heater/sensor microarray for distributed fluidic cooling assessment" Micro-Electro-Mechanical Systems (MEMS). 2001 ASME International Mechanical Engineering Congress and Exposition, 2001, p 669-75
91. Choi, Y.; Kim, K.; Allen, M.G., "A magnetically actuated, electrostatically clamped high current MEMS switch" Micro-Electro-Mechanical Systems (MEMS). 2001 ASME International Mechanical Engineering Congress and Exposition, 2001, p 83-7
92. Choi, Y.; Kim, K.; Allen, M.G., "Continuously-varying, three-dimensional SU-8 structures: fabrication of inclined magnetic actuators," Proc. Fifteenth IEEE International Conference on Micro Electro Mechanical Systems, p.176-9 (2002)
93. Park, J.W.; Cros, F.; Allen, M.G., "A sacrificial layer approach to highly laminated magnetic cores," Fifteenth IEEE International Conference on Micro Electro Mechanical Systems, p.380-3 (2002)

94. Joung, Y.H.; Nuttinck, S.; Yoon, S.W.; Allen, M.G.; Laskar, J., "Integrated inductors in the chip-to-board interconnect layer fabricated using solderless electroplating bonding," IEEE MTT-S International Microwave Symposium Digest (Cat. No.02CH37278) p.1409-12 vol.3 (2002) **(best student paper finalist)**
95. Kim, D.; Choi, Y.; Allen, M.G.; Kenney, J.S.; Kiesling, D., "A wide bandwidth monolithic BST reflection-type phase shifter using a coplanar waveguide Lange coupler," IEEE MTT-S International Microwave Symposium Digest (Cat. No.02CH37278) p.1471-4 vol.3 (2002)
96. Davis, S.P., Allen, M.G.; Prausnitz, M.R. "The mechanics of microneedles" Conference Proceedings. Second Joint EMBS-BMES Conference 2002. 24th Annual International Conference of the Engineering in Medicine and Biology Society. Annual Fall Meeting of the Biomedical Engineering Society. 2002, pt. 1, p 498-9 vol.1
97. Kim, D.; Choi, Y.; Allen, M.G.; Kenney, J.S.; Stollberg, D.W.; Kiesling, D., "An S-band reflection-type phase shifter-a design example using ferroelectrics" Materials Issues for Tunable RF and Microwave Devices III. Symposium (Materials Research Society Symposium Proceedings, Vol.720 , 2002, p 154-9
98. Allen, M.G., "MEMS technology for the fabrication of RF magnetic components" Digest of INTERMAG 2003. International Magnetism Conference, 2003, p FC-05
99. Davis, S.P.; Prausnitz, M.R.; Allen, M.G., "Fabrication and characterization of laser micromachined hollow microneedles" TRANSDUCERS '03. 12th International Conference on Solid-State Sensors, Actuators and Microsystems. Digest of Technical Papers, 2003, pt. 2, p 1435-8 vol.2
100. Courcimault, C.G.; Kercher, D.S.; Allen, M.G., "Microsystems for the fabrication of nano-scale structures" TRANSDUCERS '03. 12th International Conference on Solid-State Sensors, Actuators and Microsystems. Digest of Technical Papers, 2003, pt. 1, p 730-3 vol.1
101. Yoon, Y.K.; Kim, D.; Allen, M.G.; Kenney, J.S., "A reduced intermodulation distortion tunable ferroelectric capacitor: architecture and demonstration" 2003 IEEE MTT-S International Microwave Symposium Digest, 2003, pt. 3, p 1989-92 vol.3 **(best student paper finalist; won second place in 2003 symposium)**
102. Yoon, Y.K.; Allen, M.G., "Tunable ferroelectric capacitor with low-loss electrodes fabricated using reverse side exposure" 53rd Electronic Components and Technology Conference. Proceedings, 2003, p 1534-40
103. Joung, Y.H.; Allen, M.G., "High density electroplating bonding interconnect technology: chip packaging and high aspect ratio passive elements" 53rd Electronic Components and Technology Conference Proceedings, 2003, p 640-6
104. Park, J.W.; Allen, M.G., "Ultra-low-profile micromachined power inductors with highly laminated NiFe cores: application to low MHz DC-DC converters" Digest of INTERMAG 2003. International Magnetism Conference, 2003, p EA-04
105. Leichle, T.; Wenjing Ye; Allen, M.G., "A sub- microwatt micromachined magnetic compass" Proceedings IEEE Sixteenth Annual International Conference on Micro Electro Mechanical System, 2003, p 514-17
106. Park, J.H.; Davis, S.; Yoon, Y.K.; Prausnitz, M.R.; Allen, M.G., "Micromachined biodegradable microstructures" Proceedings IEEE Sixteenth Annual International Conference on Micro Electro Mechanical Systems, 2003, p 371-4
107. Noh, H.-S.; Choi, Y.; Wu, C.-F.; Hesketh, P.J.; Allen, M.G., "Rapid, low-cost fabrication of parylene microchannels for microfluidic applications" Proc. Transducers '03. 12th International Conference on Solid-State Sensors, Actuators and Microsystems, 2003, pt. 1, p 798-801 vol.1
108. Yoon, Y.-K.; Park, J.-H.; Cros, F.; Allen, M.G., "Integrated vertical screen microfilter system using inclined SU-8 structures" Proceedings IEEE Sixteenth Annual International Conference on Micro Electro Mechanical Systems, 2003, p 227-30
109. Pinel, S.; Cros, F.; Nuttinck, S.; Yoon, S.W.; Allen, M.G.; Laskar, J., "Very high-Q inductors using RF-MEMS technology for System-On-Package wireless communication integrated module" 2003 IEEE MTT-S International Microwave Symposium Digest, 2003, pt. 3, p 1497-1500 vol.3
110. Koser, H.; Cros, F.; Allen, M.G.; Lang, J.H., "Magnetic diffusion modeling in nonlinear micro-media: a modified finite-difference time-domain approach" 6th International Conference on Modeling and Simulation of Microsystems, pt. 1, p. 280-3 vol.1 (2003)

111. Koser, H.; Cros, F.; Allen, M.G.; Lang, J.H., "Magnetic diffusion modeling in nonlinear micro-media: A modified finite-difference time-domain approach" 6th International Conference on Modeling and Simulation of Microsystems, pt. 2, p 408-11 vol.2 (2003)
112. Wang, Y., Yuan, G., Yoon, Y.K., Allen, M.G., and Bidstrup, S.A., "A MEMS Active Cooling Substrate for Microelectronics Thermal Management," Proc. American Society of Mechanical Engineers Winter Annual Meeting, v. 3, p. 461-463 (2003)
113. Choi, Y., Powers, R., Varadraj, V., Frazier, A.B., Laplaca, M., and Allen, M.G., "High Aspect Ratio SU-8 Structures for 3-D Culturing of Neurons," Proc. American Society of Mechanical Engineers Winter Annual Meeting, v. 5, p. 654-654 (2003)
114. English, B.A., Allen, M.G., and DiBasio, H.H., "Microcombustors Based on Controllable Solid Fuel Elements," Proc. American Society of Mechanical Engineers Winter Annual Meeting, v. 5, p. 725-733 (2003)
115. Choi, Y., Ross, J., DeWeerth, S., and Allen, M.G., "Mechanically-Driven Microtweezers," Proc. American Society of Mechanical Engineers Winter Annual Meeting, v. 5, p. 317-320 (2003)
116. Yanzhu Zhao; English, B.A.; Yoonsu Choi; DiBiao, H.; Guang, Yuan; Allen, M.G., "Polymeric microcombustors for solid-phase conductive fuels" 17th IEEE International Conference on Micro Electro Mechanical Systems, Technical Digest, p 498-501 (2004)
117. Park, J.H.; Yoon, Y.K.; Prausnitz, M.R.; Allen, M.G., "High-aspect-ratio tapered structures using an integrated lens technique" 17th IEEE International Conference on Micro Electro Mechanical System, Technical Digest, p 383-6 (2004)
118. D.P. Arnold, F. Cros, I. Zana, M.G. Allen, S. Das, and J.H. Lang, "Magnetic Induction Machines Embedded in Fusion-Bonded Silicon," Proc. 2004 Solid State Sensors, Actuators, and Microsystems Workshop, Hilton Head, SC (2004)
119. C.G. Courcimault, M.G. Allen, J.P. Jayachandran, P.A. Kohl, S.A. Bidstrup, "A Sacrificial-Polymer-Based Trench Refill Process for Post-DRIE Surface Micromachining," Proc. 2004 Solid State Sensors, Actuators, and Microsystems Workshop, Hilton Head, SC (2004)
120. Y.K. Yoon, B. Pan, P. Kirby, J. Papapolymerou, M. Tentzeris, and M.G. Allen, "Surface Micromachined Electromagnetically Radiating RF MEMS," Proc. 2004 Solid State Sensors, Actuators, and Microsystems Workshop, Hilton Head, SC (2004)
121. S.O. Choi, Y.K. Yoon, M.G. Allen, and A.T. Hunt, "A Tunable Capacitor Using an Immiscible Bifluidic Dielectric," Proc. IEEE MTT-S International Microwave Symposium Digest, v. 2, p. 873-876 (2004)
122. Park, J.H., Allen, M.G., and Prausnitz, M.R., "Biodegradable Polymer Microneedles: Fabrication, Mechanics, and Transdermal Drug Delivery," Proc. 26th Conference of IEEE Engineering in Medicine and Biology Conference (EMBC), p. 2654-2657 (2004)
123. Pan, B., Yoon, Y., Kirby, P., Papapolymerou, J., Tentzeris, M., and Allen, M.G., "A W-Band Surface Micromachined Monopole for Low-Cost Wireless Communication Systems," Proc. IEEE MTT-S International Microwave Symposium Digest, v. 3, p. 1935-1938 (2004)
124. Hong, S.J., Choi, S., Choi, Y., Allen, M.G., and May, G., "Characterization of Low Temperature SU-8 Photoresist Processing for MEMS Applications," Proc. IEEE Semiconductor Manufacturing Conference, p. 404-408 (2004)
125. S. Das, D. Arnold, I. Zana, J-W. Park, J.H. Lang, and M.G. Allen, "Multi-Watt Electric Power from a Microfabricated Permanent-Magnet Generator," Proc. IEEE Microelectromechanical Systems Conference, p. 287-290 (2005)
126. Allen, M.G., "Implantable micromachined wireless pressure sensors: approach and clinical demonstration," Proc. 2nd International Workshop on Wearable and Implantable Body Sensor Networks (BSN 2005), p. 40-41, London, 2005 (**invited**)
127. G. Yuan, X. Wu, Y.K. Yoon, and M.G. Allen, "Kinematically-Stabilized Microbubble Actuator Arrays," Proc. IEEE Microelectromechanical Systems Conference, p. 411-414 (2005)

128. Allen, M.G., "Micromachined Endovascularly-Implantable Wireless Pressure Sensors: From Concept to Clinic," Proc. 13th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '05), p. 275-278 (2005) (invited)
129. Arnold, D.P., Joung, Y.H., Zana, I., Park, J.W., Das, S., Lang, J.H., Veazie, D., and Allen, M.G., "High-Speed Characterization and Mechanical Modeling of Microscale, Axial-Flux, Permanent-Magnet Generators," Proc. 13th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '05), p. 701-704 (2005)
130. Courcimault, C., and Allen, M.G., "High-Q Mechanical Tuning of MEMS Resonators Using a Metal Deposition-Annealing Technique," Proc. 13th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '05), p. 875-878 (2005)
131. Choi, Y., Choi, S.O., Shafer, R.H., and Allen, M.G., "Highly Inclined Electrodeposited Metal Lines Using an Excimer Laser Technique," Proc. 13th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '05), p. 1469-1472 (2005)
132. Choi, S.O., Park, J.H., Choi, Y., Kim, Y., Gill, H., Yoon, Y.K., Prausnitz, M., and Allen, M.G., "An Electrically Active Microneedle Array for Electroporation of Skin for Gene Delivery," Proc. 13th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '05), p. 1513-1516 (2005)
133. Yoon, Y.K., Pan, B., Papapolymerou, J., and Allen, M.G., "Surface-Micromachined Millimeter-Wave Antennas," Proc. 13th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '05), p. 1986-1989 (2005)
134. Park, J.W., Park, J.H., Yoon, Y.K., Joung, Y.H., Choi, S.O., Prausnitz, M.R., and Allen, M.G., "Wireless Thermal Microablation of Skin for Transdermal Drug Delivery," Proc. 13th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '05), p. 1238-1241 (2005)
135. B Pan, Y. Yoon, J. Papapolymerou, M. Tentzeris, and M. Allen, "Design and Fabrication of Substrate-Independent Integrated Antennas Utilizing Surface Micromachining", Proc. Asian-Pacific Microwave Conference (APMC), Dec. 4-7, Suzhou, China, 2005.
136. Zana, I., Herrault, F., Arnold, D. P., and Allen, M. G., "Magnetic patterning of permanent-magnet rotors for microscale motor/generators," in Proc. 5th Int. Workshop Micro Nanotechnology For Power Generation and Energy Conversion Apps. (PowerMEMS 2005), Tokyo, Japan, pp. 116-119, November 2005.
137. Zana, I., Herrault, F., Arnold, D. P., and Allen, M. G., "Magnetic patterning of permanent-magnet rotors for microscale motor/generators," in Proc. 5th Int. Workshop Micro Nanotechnology For Power Generation and Energy Conversion Apps. (PowerMEMS 2005), Tokyo, Japan, pp. 116-119, November 2005.
138. Arnold, D. P., Galle, P., Herrault, F., Das, S., Lang, J. H., and Allen, M. G., "A self-contained, flow-powered microgenerator system," in Proc. 5th Int. Workshop Micro Nanotechnology For Power Generation and Energy Conversion Apps. (PowerMEMS 2005), Tokyo, Japan, pp. 113-115, November 2005.
139. Arnold, D. P., Zana, I., Herrault, F., Galle, P., Park, J.-W., Das, S., Lang, J. H., and Allen, M. G., "Optimization of a microscale, axial-flux, permanent-magnet generator," in Proc. 5th Int. Workshop Micro Nanotechnology For Power Generation and Energy Conversion Apps. (PowerMEMS 2005), Tokyo, Japan, pp. 165-168, November 2005.
140. Y. Zhao, X. Wu, Yong-Kyu Yoon, J.-H. Park, S.J. Kennedy, Z. Schwartz, B.D. Boyan, and M.G. Allen, "Fabrication of Micromachined Mold Masters for 3-D, High-aspect-ratio Cell Culturing Substrates", Proceedings of the 2005 ASME IMECE, Paper number IMECE2005-81991, pp.1-7, Nov. 5-11, Orlando, FL, 2005.
141. N.Naik, C. Courcimault, H. Hunter, J. Berg, J. Lee, K. Naeli, T. Wright, M. G. Allen, O. Brand, A. Glezer, W. King, "Fabrication and characterization of liquid and gaseous micro- and nanojets," Proceedings of the 2005 ASME IMECE, Paper number IMECE2005-81698, Nov. 5-11, Orlando, FL, 2005.
142. J. Lee, K. Naeli, H. Hunter, J. Berg, T. Wright, C. Courcimault, N.Naik, M. G. Allen, O. Brand, A. Glezer, W. King, "Micro-cantilever based metrology tool for flow characterization of liquid and gaseous micro/nanojets," Proceedings of the 2005 ASME IMECE, Paper number IMECE2005-81732, Nov. 5-11, Orlando, FL, 2005.

143. X. Wu, Y. Zhao, Yong-Kyu Yoon, S.-O. Choi, J.-H. Park, and M.G. Allen, "Wafer-scale Micromolding of Unitary Polymeric Microstructures with Simultaneously Formed Functional Metal Surface", Proceedings of the International Conference on Micro Total Analysis Systems, Boston MA, pp.205-207, Oct. 2005.
144. B.A. English, P. Gadiraju, C.S. Rinehart, A. Glezer, and M.G. Allen, "Gas Generator Actuator Arrays For Flight Control Of Spinning Body Projectiles" Proc. 19th IEEE Int. Conf. MicroElectro Mechanical Systems (MEMS 2006), Istanbul, Turkey, January 2006.
145. W. Ye, Y.-K Yoon, and M. G. Allen, "Investigation of Gas Separation Induced by Thermal Loading," Proc. IEEE Nano/Micro Engineered and Molecular Systems (NEMS) conference, Zhuhai, China, Jan. 18-20, 2006.
146. Pan, B., DeJean, G., Papapolymerou, J., Tentzeris, M.M., Yoon, Y., Allen, M.G., "High performance system-on-package integrated Yagi-Uda antennas for W-band applications and mm-wave ultra-wideband data links," Proc. 56th Electronic Components & Technology Conference, May, 2006.
147. E.D. Birdsell, and M.G. Allen, "Wireless Chemical Sensors for High Temperature Environments," Tech. Dig. Solid-State Sensor, Actuator, and Microsystems Workshop (Hilton Head 2006), June 2006.
148. S-O. Choi, S. Rajaraman, Y-K. Yoon, X. Wu, and M.G. Allen, "3-D Metal Patterned Microstructure using Inclined UV Exposure and Metal Transfer Micromolding Technology," Tech. Dig. Solid-State Sensor, Actuator, and Microsystems Workshop (Hilton Head 2006), June 2006.
149. M.A. Fonseca, J. Kroh, J. White, and M.G. Allen, "Flexible Wireless Passive Pressure Sensors for Biomedical Applications," Tech. Dig. Solid-State Sensor, Actuator, and Microsystems Workshop (Hilton Head 2006), June 2006.
150. X. Wu, G. Yuan, S-O. Choi, Y. Zhao, S-H. Kim, Y-K. Yoon, and M. G. Allen, "Lateral lamination approach for multilayer piezoelectric microactuator," Tech. Dig. Solid-State Sensor, Actuator, and Microsystems Workshop (Hilton Head 2006), June 2006.
151. Y-K. Yoon, and M.G. Allen, "Proximity Mode Inclined UV Lithography," Tech. Dig. Solid-State Sensor, Actuator, and Microsystems Workshop (Hilton Head 2006), June 2006.
152. Florian Herrault, David P. Arnold, Iulica Zana, Preston Galle, Mark G. Allen, "Multi-Watt, Microscale, Axial-Flux, Permanent-Magnet Generators Operating at High Temperatures," IEEE Intermag 2006 Technical Digest, May 8-12, San Diego CA, 2006.
153. Seungkeun Choi, Seong-Hyok Kim, Yong-Kyu Yoon, Mark G. Allen, "A Magnetically Excited And Sensed MEMS-Based Resonant Compass," IEEE Intermag 2006 Technical Digest, May 8-12, San Diego CA.
154. Xiaosong Wu, Yanzhu Zhao, Yong-Kyu Yoon, Seong-O Choi, Jung-Hwan Park and Mark G. Allen, "Enhanced Wettability polymer micromolding by a 3-D metal transfer process," Proc. American Chemical Society Polymer Division, ACS 2006, Atlanta GA, March 2006.
155. J.S. Kenney, Y.K. Yoon, M. Ahn, M.G. Allen, Z. Zhao, X. Wang, A. Hunt, and D. Kim, "Low-Voltage Ferroelectric Phase Shifters from L-to C-Band," Proc. IEEE Aerospace Conference, Big Sky, MT, March, 2006.
156. Z. Liu, D.G. Bucknall, and M.G. Allen, "Fabrication of Nanopatterns by Inclined Nanoimprint Lithography," Proc. 14th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '07), Lyon, France, June 2007.
157. P.D. Gadiraju, J.W. Park, J.W. Lee, M.R. Prausnitz, and M.G. Allen, "Microablation of Skin by Arc-Discharge Jet Ejection for Transdermal Drug Delivery," Proc. 14th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '07), Lyon, France, June 2007.
158. F. Herrault, C.-H. Ji, R.H. Shafer, S.-H. Kim, and M.G. Allen, "Ultraminiaturized Milliwatt-Scale Permanent Magnet Generators," Proc. 14th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '07), Lyon, France, June 2007.
159. F. Herrault, C.-H. Ji, S. Rajaraman, R.H. Shafer, and M.G. Allen, "Electrodeposited Metal Structures in High Aspect Ratio Cavities Using Vapor Deposited Polymer Molds and Laser Micromachining," Proc. 14th Int'l Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '07), Lyon, France, June 2007.

160. Y. Zhao, Y.K. Yoon, X. Wu, and M.G. Allen, "Metal-Transfer Micromolding of Air-Lifted RF Components," Proc. 14th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '07), Lyon, France, June 2007.
161. S. Choi, S.H. Kim, Y.K. Yoon, and M.G. Allen, "Exploitation of Nonlinear Effects for Enhancement of the Sensing Performance of Resonant Sensors," Proc. 14th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '07), Lyon, France, June 2007.
162. S. Rajaraman, M.A. McClain, S-O Choi, J.D. Ross, S. P. DeWeerth, M. C. LaPlaca, and M. G. Allen, "Three-Dimensional Metal Transfer Micromolded Microelectrode Arrays for In-Vitro Brain Slice Recordings," Proc. 14th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '07), Lyon, France, June 2007.
163. X. Wu, H. Zhu, and M.G. Allen, "A Pneumatically Actuated Endoskeletal Microbubble Array as a Refreshable Braille Cell," Proc. 14th International Conference on Solid-State Sensors, Actuators and Microsystems (Transducers '07), Lyon, France, June 2007.
164. P. Galle, X. Wu, L. Milner, S.-H. Kim, P. Johnson, P. Smeys, P. Hopper, K. Hwang, and M.G. Allen, "Ultra-Compact Power Conversion Based on a CMOS-Compatible Microfabricated Power Inductor With Minimized Core Losses," Proc. 57th IEEE Electronic Components and Technology Conference, Reno, NV, May 2007.
165. Y. Zhao, Y.-K. Yoon, and M.G. Allen, "Metal-Transfer-Micromolded RF Components for System-On-Package (SOP)," Proc. 57th IEEE Electronic Components and Technology Conference, Reno, NV, May 2007 (**best paper**).
166. F. Herrault, C. Ji, S.H. Kim, X. Wu, and M.G. Allen, "A microfluidic-electric package for power MEMS generators," Proc. 21st IEEE Conference on Microelectromechanical Systems, p. 112-115, Jan, 2008.
167. J. Kim, M.G. Allen, and Y.K. Yoon, "Automated dynamic-mode multidirectional UV lithography for complex 3-D microstructures," Proc. 21st IEEE Conference on Microelectromechanical Systems, p. 399-402, Jan, 2008.
168. X. Wu, S.H. Kim, C.H. Ji, and M.G. Allen, "A piezoelectrically-driven high flow rate axial polymer microvalve with solid hydraulic amplification," Proc. 21st IEEE Conference on Microelectromechanical Systems, p. 523-526, Jan, 2008.
169. F. Herrault, T. Crittenden, S. Yorish, E. Birdsell, A. Glezer, and M.G. Allen, "A self-resonant, MEMS-fabricated, air-breathing engine," Proc. Solid State Sensors, Actuators, and Microsystems Conference, Hilton Head, SC, June, 2008.
170. Zhao, Y., Kim, S.H., Li, Y., Pan, B., Wu, X., Tentzeris, M., Papapolymerou, J., and Allen, M.G., "A micromachined airflow sensor based on RF evanescent-mode cavity resonator," IEEE MTT-S International Microwave Symposium Digest - MTT 2008, p 1199-202, 2008
171. Kim, S.H., Ji, C.H., Galle, P., Herrault, F., Wu, X., Lee, J.H., Choi, C.A., and Allen, M.G., "An electromagnetic energy scavenger from direct airflow," 8th International Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion Applications with the 2nd Symposium on Micro Environmental Machine Systems, p 133-6, 2008
172. Yen, B.C., Herrault, F., Hillman, K.J., Allen, M.G., Enrich, F.F., Jacobson, S., Ji, C.H., Lang, J.H., Li, H., Spakovszky, Z.S., Veazie, D.R., "Characterization of a fully-integrated permanent-magnet turbine generator," 8th International Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion Applications with the 2nd Symposium on Micro Environmental Machine Systems, p 121-4, 2008
173. Aiyar, A.R., Song, C., Kim, S.H., and Allen, M.G., "An all polymer air-flow sensor array using a piezoresistive composite elastomer," IEEE 22nd International Conference on Micro Electro Mechanical Systems, p 447-50, 2009.
174. Xu, W. and Allen, M.G., "Fabrication of patterned carbon nanotube (CNT) / elastomer bilayer material and its utilization as force sensors," 15th International Conference on Solid-State Sensors, Actuators and Microsystems. Transducers 2009, p 2242-5, 2009

175. Herrault, F., Yorish, S., Crittenden, T., and Allen, M.G., "Microfabricated, ultra-dense, three-dimensional metal coils," 15th International Conference on Solid-State Sensors, Actuators and Microsystems. Transducers 2009, p 1718-21, 2009
176. Naik, N., Caves, J., Kumar, V., Chaikof, E., and Allen, M.G., "A template-based fabrication technique for spatially-designed polymer micro/nanofiber composites," 15th International Conference on Solid-State Sensors, Actuators and Microsystems. Transducers 2009, p 1869-72, 2009
177. Song, C., Aiyar, A.R., Kim, S.H., and Allen, M.G., "Exploitation of aeroelastic effects for drift reduction in an all-polymer air flow sensor," 15th International Conference on Solid-State Sensors, Actuators and Microsystems. Transducers 2009, p 1545-8, 2009
178. Ji, C.H., Herrault, F., and Allen, M.G., "Micro projection lithography using microlens-on-a-mask," 15th International Conference on Solid-State Sensors, Actuators and Microsystems. Transducers 2009, p 1908-11, 2009
179. Liu, Z., Bucknall, D.G., and Allen, M.G., "Fabrication of molecular-scale patterns with chemically tunable functionalities," 15th International Conference on Solid-State Sensors, Actuators and Microsystems. Transducers 2009, p 449-52, 2009
180. Paik, S.J., Kim, S.H., Wang, P., Wester, B., and Allen, M.G., "Dissolvable-tipped, drug-reservoir integrated microneedle array for transdermal drug delivery," IEEE 23rd International Conference on Micro Electro Mechanical Systems, p. 312-15, 2010
181. Galle, W.P., Kim, S.H., Shah, U., and Allen, M.G., "Micromachined capacitors based on sequential multilayer electroplating," IEEE 23rd International Conference on Micro Electro Mechanical Systems, p. 332-5, 2010
182. Liu, Z., Naik, N., Bucknall, D., and Allen, M.G., "Mechanosynthesis of three-dimensional replicated nanostructures by nanolithography-based molecular manipulation," IEEE 23rd International Conference on Micro Electro Mechanical Systems, p 452-5, 2010
183. Xu, W., Choi, S., and Allen, M.G., "Hairlike Carbon-Fiber-Based Solar Cell," IEEE 23rd International Conference on Micro Electro Mechanical Systems, p 1187-90, 2010
184. Herrault, F., Galle, P., and Allen, M.G., "High Speed Axial Flux Permanent Magnet Micromotors With Electroplated Windings," Proceedings of the 2010 Solid State Sensors, Actuators, and Microsystems Conference, p. 404-408, 2010
185. Armutlulu, A.; Fang, Y.; Kim, S.-H.; Ji, C.-H.; Allen, S.A.B.; Allen, M.G., "High-Current Zn-Air Microbattery Based On A Micromachined Multilayer Lateral Metallic Scaffold", Proc. 10th International Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion Applications (PowerMEMS 2010), p 107-110, 2010
186. Hidalgo, P., Herrault, F.; Glezer, A.; Allen, M.G.; Kaslusky, S.; Rock, B.S. Proc. 16th International Workshop on Thermal Investigations of ICs and Systems (THERMINIC), 2010
187. Harburg, D.V., Yu, X., Herrault, F., Levey, C.G., Allen, M.G., and Sullivan, C.R. "Micro-fabricated thin-film inductors for on-chip power conversion," Proc. 2012 7th International Conference on Integrated Power Electronics Systems (CIPS), p. 6ff, 2011
188. Naik, N., Kumar, V., Chaikof, E.L., and Allen, M.G., "MEMS-assisted spatially homogeneous endothelialization of a high length-to-depth aspect ratio microvascular network," Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS, p 290-293, 2011
189. Liu, Z., Herrault, F., Kim, S.H., Bucknall, D.G., and Allen, M.G., "Fabrication of 3-D hybrid polymer-magnetite nanostructures with geometric shape anisotropy," Proc. 16th International Solid-State Sensors, Actuators and Microsystems Conference. TRANSDUCERS'11, p 1630-1633, 2011
190. Kim, J.K., Cheng, X., Senior, D.E., Allen, M.G., and Yoon, Y.K., "Three dimensional nanoscale fabrication and modeling of dynamic mode multidirectional UV lithography," Proc. 16th International Solid-State Sensors, Actuators and Microsystems Conference. TRANSDUCERS'11, p 1737-1740, 2011

191. Kranz, M., Allen, M.G., and Hudson, T., "In situ wafer-level polarization of electret films in MEMS acoustic sensor arrays," Proc. 16th International Solid-State Sensors, Actuators and Microsystems Conference, TRANSDUCERS'11, p 914-917, 2011
192. Yu, X., Herrault, F., Ji, C.H., Kim, S.K., Allen, M.G., Lisi, G., Nguyen, L., and Anderson, D.I., "Watt-level wireless power transfer based on stacked flex circuit technology," Proc. Electronic Components and Technology Conference, p 2185-2191, 2011
193. Wang, P.C., Paik, S.J., Kim, J.C., Kim, S.H., and Allen, M.G., "Hypodermic-needle-like hollow polymer microneedle array using UV lithography into micromolds," Proc. IEEE International Conference on Micro Electro Mechanical Systems (MEMS), p 1039-1042, 2011
194. Kim, J.C., Paik, S.J., Wang, P.C., Kim, S.H., and Allen, M.G., "Maskless fabrication of high aspect ratio structures by combination of micromolding and direct drawing," Proc. IEEE International Conference on Micro Electro Mechanical Systems (MEMS), p 280-283, 2011
195. Herrault, F., Hidalgo, P.A., Ji, C.H., Glezer, A., and Allen, M.G., "Cooling performance of micromachined self-oscillating reed actuators in heat transfer channels with integrated diagnostics," Proc. IEEE International Conference on Micro Electro Mechanical Systems (MEMS), p 1217-1220, 2012
196. Yu, X., Kim, M.S., Herrault, F., Ji, C.H., Kim, J.K., and Allen, M.G., "Silicon-embedded 3D toroidal air-core inductor with through-wafer interconnect for on-chip integration," Proc. IEEE International Conference on Micro Electro Mechanical Systems (MEMS), p 325-328, 2012
197. Peterson, B.A., Herrault, F., Oniku, O.D., Kaufman, Z., Arnold, D.P., and Allen, M.G., "Assessment of laser-induced damage in laser-micromachined rare earth permanent magnets at the sub-millimeter scale," Proc. IEEE International Magnetism Conference (INTERMAG), 2012
198. Luo, M., Song, C., Herrault, F., and Allen, M.G., "A microfabricated RF wireless pressure sensor made completely of biodegradable materials," Proc. 14th Solid State Sensors, Actuators, and Microsystems Workshop, p. 38-41, 2012
199. Paik, S.J., Park, S., Zamitsyn, V., Choi, S., Guo, X., Prausnitz, M., and Allen, M.G., "A dense nanoneedle array for intracellular gene delivery," Proc. 14th Solid State Sensors, Actuators, and Microsystems Workshop, p. 149-152, 2012
200. Kim, J.K., Paik, S.J., Herrault, F., and Allen, M.G., "UV-LED lithography for 3-D high aspect ratio microstructure patterning," Proc. 14th Solid State Sensors, Actuators, and Microsystems Workshop, p. 481-484, 2012
201. A. Armutlulu, J.K. Kim, M. Kim, S.A. Bidstrup Allen, M. G. Allen, "Nickel Oxide-Based Supercapacitors with High Aspect Ratio Concentric Cylindrical Electrodes," *Transducers 2013*, p 1480-1483, Barcelona, Spain, June 2013.
202. M. Kim, F. Herrault, J. Kim, J.K. Kim, and M.G. Allen, "Monolithically-fabricated laminated inductors with electrodeposited silver windings," *IEEE International Conference on Micro Electro Mechanical Systems (MEMS)*, p 873-876, Jan. 2013.
203. M. Tsang, F. Herrault, R.H. Shafer, and M.G. Allen, "Methods for the microfabrication of magnesium," *IEEE International Conference on Micro Electro Mechanical Systems (MEMS)*, p 347-350, Jan. 2013.
204. Y. Li, J. Kim, M. Kim, A. Armutlulu, and M.G. Allen, "Retaining high areal in-plane magnetic energy density over large magnetic thickness: a permanent magnetic microlamination approach based on sequential multilayer electroplating," *15th Solid State Sensors, Actuators, and Microsystems Workshop* June 2014.
205. X. Yu, J.K. Kim, F. Herrault, and M.G. Allen, "Silicon-Embedded Toroidal Inductors with Magnetic Cores: Design Methodology and Experimental Validation," *Applied Power Electronics Conference and Exposition (APEC 2014)*, p 763-767, Mar. 2014.
206. M. Tsang, A. Armutlulu, A. Martinez, F. Herrault, S.A. Bidstrup Allen, M.G. Allen, "A MEMS enabled Biodegradable Battery for Powering Transient Implantable Devices," *MEMS 2014*, p 358-361, San Francisco, CA, Jan. 2014.

207. Allen, M.G., "Microfabricated implantable wireless microsystems: Permanent and biodegradable implementations," *Proc. IEEE MEMS 2014*, p 1-4, San Francisco, CA, Jan. 2014 (**invited plenary address**).
208. H.S. Yoon, S.J. Lee, J.Y. Park, S.J. Paik, and M.G. Allen, "A non-enzymatic micro-needle patch sensor for free cholesterol continuous monitoring," *Proc. 2014 IEEE Sensors Conference*, p. 347-350, 2014.
209. J. Kim, M. Kim, and M.G. Allen, "Solenoid microinductors with anisotropic nanolaminated CoNiFe cores for high-frequency DC-DC power conversion," *Proc. IEEE Magnetics Conference (Intermag)*, 2015.
210. J. Kim, M. Kim, and M.G. Allen, "Surface tension-driven assembly of metallic nanosheets at the liquid-air interface: Application to highly laminated magnetic cores," *Proc. 18th International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '15)*, p. 2224-2227, Anchorage, AK, 2015.
211. M. Luo, W. Shen, Y. Wang, and M.G. Allen, "In vitro degradation of biodegradable metal Zn and Zn/Fe-couples and their application as conductors in biodegradable sensors," *Proc. 18th International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '15)*, p. 1370-1373, Anchorage, AK, 2015.
212. M. Luo, W. Shen, and M.G. Allen, "Microfabricated PLGA/PVA-based completely biodegradable passive RF sensors," *Proc. 18th International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '15)*, p. 2224-2227, Anchorage, AK, 2015.
213. D. She, M. Tsang, J.K Kim, and M.G. Allen, "Immobilized electrolyte biodegradable batteries for RF MEMS," *Proc. 18th International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '15)*, p. 494-497, Anchorage, AK, 2015.
214. X. Yu and M.G. Allen, "Fabrication of multi-layer windings in silicon-embedded toroidal inductors," *Proc. 18th International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '15)*, p. 610-613, Anchorage, AK, 2015.
215. J.K Kim, Y.K. Yoon, T.C. Mier, and M.G. Allen, "CNC-lithography: Computer-controlled multidirectional light-motion-synchronized lithography for 3-D microfabrication," *Proc. 18th International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '15)*, p. 1358-1361, Anchorage, AK, 2015.
216. W. Shen, L. Struznya, D.K. Cullen, and M.G. Allen, "Fabrication of neural microelectrode arrays from extracellular matrix," *Proc. Solid State Sensors, Actuators, and Microsystems Conference (Hilton Head '16)*, p. 24-27 Hilton Head, SC, 2016.
217. M. Kim, J. Kim, and M.G. Allen, "Multilayer deposition from micromachined templates: A controllable, scalable route to superhydrophobic surfaces," *Proc. Solid State Sensors, Actuators, and Microsystems Conference (Hilton Head '16)*, p. 72-75, Hilton Head, SC, 2016.
218. T. Zhang, M. Tsang, and M.G Allen, "Biodegradable electrical interconnects for transient implantable systems," *Proc. Solid State Sensors, Actuators, and Microsystems Conference (Hilton Head '16)*, p. 328-331, Hilton Head, SC, 2016.
219. M. Kim, J. Kim, and M.G. Allen, "Composite Materials with Controllable Macromechanical Properties Based on MEMS-Assisted Structural Manipulation of Low-Dimensional Subcomponents," *Proc. IEEE MEMS '17*, p 708-711, Las Vegas, NV, Jan. 2017
220. D. Kim, D.C. Ahn, M.G. Allen, and Y.K. Choi, "Triboelectrification-Driven Fin-FACT (Flip-Flop Actuated Channel Transistor) for Security Application," *Proc. IEEE MEMS '17*, p 171-174, Las Vegas, NV, Jan. 2017
221. J. Kim, Y.K. Yoon, M.G. Allen, "Double-Side Exposure UV-LED CNC Lithography for Fine 3D Microfabrication," *Proc. IEEE NEMS '17*, p 463-466, Los Angeles, CA, April 2017
222. J. Kim, M. Kim, and M.G. Allen, "Nanolaminated CoNiFe Cores with Dip-Coated Fluoroacrylic Polymer Interlamination Insulation: Fabrication, Electrical Characterization, and Performance Reliability," *Proc. IEEE ECTC '17*, p 798-803, Orlando, FL, May 2017
223. N. Song, P. Xie, W. Shen, M. Javanmard, and M.G. Allen, "Microwell-Array on a Flexible Needle: A Transcutaneous Insertable Impedance Sensor for Label-Free Cytokine Detection," *Proc. IEEE MEMS '18*, Belfast, Northern Ireland, Jan. 2018

- 224.L. Du and M.G. Allen, "Silica Packages Based on Laser Patterning and Localized Fusion Bonding," *Proc. IEEE MEMS '18*, Belfast, Northern Ireland, Jan. 2018
- 225.M.J. Synodis, M. Kim, S.A.B. Allen, and M.G. Allen, "MEMS-Enabled Scalable Fabrication of High Performance Lithium Ion Battery Electrodes," *Proc. IEEE MEMS '18*, Belfast, Northern Ireland, Jan. 2018
- 226.M.J. Synodis, J. Pikul, S.A.B. Allen, and M.G. Allen "Integrated Fabrication of Serially-Connected High Voltage Microbatteries Via Multilayer Electrodeposition," *Proc. 20th International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '19)*, Berlin, Germany, Jun 2019.
- 227.Mahmoodi, S.R., Xie, P., Zachs, D.P., Peterson, E.J., Lim, H.H., Allen, M.G., and Javanmard, M., "Label-free impedimetric sensing of cortisol in human serum based on nanowell array electrodes," *24th International Conference on Miniaturized Systems for Chemistry and Life Sciences, MicroTAS* (pp. 526-527), October, 2020.
- 228.Kagan, C., Arnold, D.P., Allen, M.G., and Olsson, R.H., "IoT4Ag: MEMS-Enabled Distributed Sensing, Communications, and Information Systems for the Internet of Things for Precision Agriculture," *Proc. IEEE Mems Conference*, Online Conference, January 2021.
- 229.Du, L., Wang, X., and Allen, M.G., "Planar CMOS-Compatible Fusion-Bonded Silica Vacuum Packages," *Proc. 21st International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '21)*, Online Conference, June 2021.
- 230.Venkatesh, V. Yang, Q., Zhang, J., Pikul, J., and Allen, M.G., "Fabrication and Characterization of Evaporated Zinc Anodes for Small-Scale Zinc-Air Batteries," *Proc. 21st International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '21)*, Online Conference, June 2021.
- 231.Song, N., Xie, P., Javanmard, M., and Allen, M.G., "A Microwell-Based Impedance Sensor in Microneedle Shape for Multiplexing Cytokine Detection," *Proc. 21st International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '21)*, Online Conference, June 2021.
232. J. B. Pyo, X. Wang, M. Kim and M. G. Allen, "Non-lithographic and scalable fabrication of one-turn-like inductor having laminated NiFe core for power converters operating at high frequency," *2021 IEEE 20th International Conference on Micro and Nanotechnology for Power Generation and Energy Conversion Applications (PowerMEMS)*, pp. 1-3, doi: 10.1109/PowerMEMS54003.2021.9658371, November, 2021.
- 233.J. Zhang and M.G. Allen, "In-Soil Biodegradable Zn-Air Batteries," *Proc. Solid State Sensors, Actuators, and Microsystems Conference* (Hilton Head '22), Hilton Head, SC, 2022
- 234.Y. Huang, J. Vyletel, M. G. Allen and S. Ann Bidstrup Allen, "Microfabrication-Enhanced Carbon Fiber Cathodes for High Discharge Rate Aluminum-Air Batteries," *2022 21st International Conference on Micro and Nanotechnology for Power Generation and Energy Conversion Applications (PowerMEMS)*, Salt Lake City, UT, USA, 2022, pp. 195-197, doi: 10.1109/PowerMEMS56853.2022.10007619.

III.D Issued U.S. Patents*

1. Allen, M.G. and Senturia, S.D., "Method and Apparatus for the Quantitative Measurement of Adhesion of Thin Films," U.S. Patent 4,899,581, issued February, 1990.
2. Jokerst, N.M., Brooke, M.A., and Allen, M.G., "Processes For Lift-Off of Thin Film Materials and For the Fabrication of Three Dimensional Circuits," U.S. Patent 5,244,818, issued September, 1993.
3. Jokerst, N.M., Brooke, M.A., and Allen, M.G., "Three Dimensional Integrated Circuits with Lift-Off," U.S. Patent 5,280,184, issued January, 1994.
4. Drabik, T.J., Jokerst, N.M., Brooke, M.A., and Allen, M.G., "Processes for Lift-Off and Deposition of Thin Film Materials," U.S. Patent 5,286,335, issued February, 1994.

*Only issued US patents listed; multiple foreign patents (issued or in process) based on these patents, as well as applications and disclosures in process, are not listed.

5. Jokerst, N.M., Brooke, M.A., and Allen, M.G., "Processes for Lift-Off of Thin Film Materials or Devices for Fabricating Three Dimensional Integrated Circuits, Optical Detectors, and Micromechanical Devices," U.S. Patent 5,401,983, issued March, 1995.
6. Allen, M.G. and Ahn, C.H., "Fully Integrated Micromachined Magnetic Particle Manipulator and Separator," U.S. Patent 5,655,665, issued August, 1997.
7. Allen, M.G. and Ahn, C.H., "Fully Integrated Magnetic Micromotors and Methods for Their Fabrication," U.S. Patent 5,710,466, issued January, 1998.
8. Glezer, A., Allen, M.G., Coe, D.J., Smith, B.L., Trautman, M.A., and Wiltse, J.W., "Synthetic Jet Actuator and Applications Thereof," U.S. Patent 5,758,823, issued June 2, 1998
9. Allen, M.G. and Taylor, W.P., "A Magnetic Relay System and Method Capable of Microfabrication Production," U.S. Patent 5,847,631, issued December, 1998
10. Glezer, A., Allen, M.G., Coe, D.J., Smith, B.L., Trautman, M.A., and Wiltse, J.W., "Synthetic Jet Actuator and Applications Thereof," U.S. Patent 5,894,990, (continuation in part of U.S. Patent 5,758,823), April, 1999
11. Allen, M.G. and Ahn, C.H., "Fully Integrated Magnetic Micropumps and Methods for Their Fabrication," continuation in part of issued U.S. Patent 5,710,466 (Fully Integrated Magnetic Micromotors and Methods for Their Fabrication); U.S. Patent 5,909,069, issued June, 1999
12. Glezer, A., and Allen, M.G., "Miniature Reciprocating Combustion-Driven Machinery," U.S. Patent 6,109,222, issued August, 2000
13. Allen, M.G. and English, J., "System and Method for the Wireless Sensing of Physical Properties," U.S. Patent 6,111,520, issued August, 2000
14. Glezer, A., and Allen, M.G., "Synthetic Jet Actuators for Cooling Heated Bodies and Environments," U.S. Patent 6,123,143, issued September, 2000
15. Allen, M.G., and English, J.M., "System, Method, and Sensors for Sensing Physical Properties," U.S. Patent 6,278,379, issued August, 2001
16. Allen, M.G., Taylor, W.P., and Park, J.Y., "Microfabricated Electromagnetic System and method for Forming Electromagnets in Microfabricated Devices," U.S. Patent 6,281,560, issued August, 2001
17. Allen, M.G., Prausnitz, M.R., McAllister, D.V., and Cros, F., "Microneedle Devices and Methods of Manufacture and Use Thereof," U.S. Patent 6,377,155, issued January, 2002
18. Allen, M.G., and Leichle, T., "System and Method of Providing a Resonant Micro-Compass," U.S. Patent 6,429,652, issued August, 2002.
19. Glezer, A., and Allen, M.G., "Micromachined Synthetic Jets Actuators and Applications Thereof," U.S. Patent 6,457,654, issued October, 2002
20. Allen, M.G., Chang, S.P., and Lee, J.B., "Robust-Substrate-Based Micromachining Techniques and their Application to Micromachined Sensors and Actuators," U.S. Patent 6,458,618, issued October, 2002
21. Prausnitz, M.R., Allen, M.G., McAllister, D., and Henry, S., "Microneedle Device for Transport of Molecules Across Tissue," U.S. Patent 6,503,231, issued January, 2003
22. Allen, M.G., and Chung, C.C., "Micromachined device having electrically isolated components and a method for making the same," U.S. Patent 6,544,811, issued April 8, 2003
23. Allen, M.G., Cros, F., Park, J.-W., and Kieun, K., "Method for selective deposition of materials in micromachined molds" U.S. Patent 6,566,251, issued May 20, 2003
24. Glezer, A., Mahalingam, R., and Allen, M.G., "System and method for thermal management by synthetic jet ejector channel cooling techniques" U.S. Patent 6,588,497, Issued July 8, 2003
25. Prausnitz, M.R., Allen, M.G., and Gujral, I.-J., "Microneedle drug delivery device" U.S. Patent 6,611,707, issued August 26, 2003

26. Prausnitz, M.R., Allen, M.G., Henry, S., McAllister, D.V., Ackley, D.E., and Jackson, T., "Devices and methods for enhanced microneedle penetration of biological barriers" U.S. Patent 6,743,211, issued June, 2004
27. Allen, M.G., and Chung, C.C., "Micromachined device having electrically isolated components and a method for making the same" U.S. Patent 6,809,392, issued October 26, 2004
28. Allen, M.G., Book, W.J., Ebert-Uphoff, I., Glezer, A., Rosen, D.W., and Rossignac, J.R., "Digital Clay Apparatus and Method," U.S. Patent 6,836,736, issued December 28, 2004
29. Fonseca, M., Allen, M.G., Stern, D., White, J., and Kroh, J., "Implantable Wireless Sensor for Pressure Measurement Within the Heart," U.S. Patent 6,855,115, issued February 15, 2005
30. Allen, M.G., Book, W.J., Ebert-Uphoff, I., Glezer, A., Rosen, D.W., and Rossignac, J.R., "Digital Clay Apparatus and Method," U.S. Patent 7,047,143, issued May 16, 2006
31. Allen, M.G., and Chung, C.C., "Micromachined device having electrically isolated components and a method for making the same," U.S. Patent 7,115,437, issued October 3, 2006
32. Park, J.W., Cros, F., Allen, M.G., Yoon, Y.K., "Methods for manufacturing inductor cores," U.S. Patent 7,140,092, issued November 28, 2006
33. Allen, M.G., Fonseca, M., White, J., Kroh, J. Stern, D., "High Q-Factor Sensor," U.S. Patent 7,147,604, issued December 12, 2006
34. Allen, M.G., Yoon, Y.K., Park, J.W., Joung, Y.H., Cros, F., Papapolymerou, I., Tentzeris, E., Pan, B., "Surface Micromachined Millimeter-Scale RF System and Method," U.S. Patent 7,196,666, issued March 27, 2007
35. Prausnitz, M.R., Allen, M.G., and Gujral, I.-J., "Microneedle drug delivery device" U.S. Patent 7,226,439, issued June 2007
36. Joy, J., Kroh, J., Ellis, M., Allen, M.G., and Pyle, W., "Communicating with Implanted Wireless Sensor," U.S. Patent 7,245,117, issued July 2007
37. Prausnitz, M., Allen, M.G., Gujral, I.J., "Microneedle Device for Extraction and Sensing of Bodily Fluids," U.S. Patent 7,344,499, issued March, 2008
38. Allen, M.G., Ellis, M.E., Kroh, J., Miller, D., "Communicating with an Implanted Wireless Sensor," U.S. Patent 7,439,723, issued October, 2008
39. Choi, Y., Allen, M.G., Ross, J., DeWeerth, S.P., "Microfabricated mechanically actuated microtool and methods," U.S. Patent 7,461,882, issued December 2008
40. Allen, M.G., Ellis, M.E., Kroh, J., Miller, D., "Communicating with an Implanted Wireless Sensor," U.S. Patent 7,498,799, issued March, 2009
41. Joy, J., Kroh, J.K., Ellis, M.E., Allen, M.G., Pyle, W., "Communicating with an Implanted Wireless Sensor," U.S. Patent 7,550,978, issued June, 2009
42. O'Brien, D., White, J., Fonseca, M., Kroh, J., Allen, M., Stern, D., "Method of manufacturing an implantable wireless sensor," U.S. Patent 7,574,792, issued August, 2009
43. Yadav, J., Allen, M.G., O'Brien, D., Stern, D., White, J., and Fonseca, M., "Hydraulically actuated artificial muscle for ventricular assist," U.S. Patent 7,618,363, issued November, 2009
44. O'Brien, D., Cros, F., Park, J.W., Fonseca, M., You, L., and Allen, M.G., "Hermetic chamber with electrical feedthroughs," U.S. Patent 7,854,172, issued December, 2010.
45. Allen, M.G., "Sensor with electromagnetically coupled pressure reference," U.S. Patent 8,025,625, issued September, 2011
46. Park, J.H., Allen, M.G., and Prausnitz, M.R., "Particle-Based Molding," U.S. Patent 8,101,114, Jan, 2012
47. Joy, J., Kroh, J., Ellis, M., Allen, M.G., Pyle, W., "Communicating with an implanted wireless sensor," U.S. Patent 8,237,451, issued August 7, 2012
48. Prausnitz M.R., Allen, M.G., Gujral, I.J., "Microneedle Drug Delivery Device," U.S. Patent 8,257,324, issued

September 2012

49. Park, J.W., Cros, F., Allen, M.G., "Physical property sensor with active electronic circuit and wireless power and data transmission," U.S. Patent 8,264,240, issued September, 2012
50. Prausnitz, M.R., Allen, M.G., Park, J.H., Yoon, Y.K., Park, J.W., "Methods and devices for thermal treatment," U.S. Patent 8,690,865, issued April, 2014
51. Glezer, A., Weiss, L.G., and Allen, M.G., "Marine Vehicle System and Methods," U.S. Patent 9,032,900, issued May, 2015
52. J. Park, F. Cros, and M.G. Allen, "Physical Property Sensor with Active Electronic Circuit and Wireless Power and Data Transmission," U.S. Patent 9,041,416, issued June, 2015
53. Allen, M., Choi, S.O., Park, J.W., Wu, X., Zhao, Y., Yoon, Y.K., and Allen, M.G., "Method for making electrically conductive three-dimensional structures," U.S. Patent 9,330,820, issued May 2016
54. Ross, J., Brown, E.A., Rajaraman, S., Allen, M.G., and Wheeler, B., "Apparatus and methods for high throughput network electrophysiology and cellular analysis," U.S. Patent 9,290,756, issued March, 2016
55. O'Brien, D., White, J. Fonseca, M., Allen, M.G., and Stern, D., "Implantable Wireless Sensor," U.S. Patent 9,265,428, issued February, 2016
56. Ross, J., Brown, E.A., Rajaraman, S., Allen, M.G., Wheeler, B., "Apparatus and methods for high throughput network electrophysiology and cellular analysis," U.S. Patent 9,290,756, issued March, 2016
57. Allen, M.G., Choi, S.O., Park, J.H., Wu, X., Zhao, Y., Yoon, Y.K., Rajaraman, S., "Method for making electrically conductive three-dimensional structures," U.S. Patent 9,330,820, issued May, 2016
58. Park, J.W., Cros, F., Allen, M.G., "Physical Property Sensor with Active Electronic Circuit and Wireless Power and Data Transmission," U.S. Patent 9,653,926, issued May, 2017

IV. HONORS AND AWARDS

1. Member, Tau Beta Pi (Engineering Honor Society), 1984
2. Member, Phi Lambda Upsilon (Chemistry Honor Society), 1984
3. Arthur K. Doolittle Award, American Chemical Society Division of Polymeric Materials: Science and Engineering, 1988
4. Georgia Tech College of Engineering Faculty Research Award, 2000
5. School of Electrical and Computer Engineering Sustained Program Development Award, 2002
6. J.M. Pettit Professorship in Microelectronics, Georgia Institute of Technology, 2005
7. Named as Regents' Professor, University System of Georgia, 2005.
8. Outstanding Leadership Award for Development of Graduate Research Assistants (for the period 2001-2003), Georgia Institute of Technology, 2005
9. AeA Spirit of Endeavor Award, 2007
10. Named as IEEE Fellow, 2011
11. Alfred Fitler Moore Professorship, University of Pennsylvania, 2013
12. Georgia Research Alliance Catalyst Award, 2014
13. IEEE Daniel P. Noble Award, 2016
14. Fellow, National Academy of Inventors, 2017
15. IEEE Benjamin Franklin Key Award, 2020
16. Elected to National Academy of Engineering, 2023