

PUBLICATIONS:

Book Chapters:

1. J. Wu, "In situ Nanoparticle Focusing within Microfluidics," in "Microfluidic Devices in Nanotechnology," C.S. Kumar (Ed.), John Wiley & Sons, Inc., May 2010, ISBN: 978-0-470-47227-9.
2. J. Wu, "Microneedles" in "Encyclopedia of Microfluidics and Nanofluidics," D. Li (Ed.), Springer-Verlag: Berlin Heidelberg, 2008, ISBN: 978-0-387-49000-7.
3. J. Wu, "Introducing and Exploring Nanotechnology for Broad Range Electrical Engineering Students," Chapter 17, INNOVATIONS 2007-World Innovations in Engineering Education and Research, W. Aung, J. Moscinski, M. Rasteiro, et al. (Ed.), ISSN 1553-9911, ISBN 978-0-9741252-6-8, 2007.

Journal Papers: (28 published since 2004, 33 total)

1. H. Cui, S. Li, J. Wu, S. Eda, and Q. Yuan, "An AC Electrokinetics - Based Impedance Immunosensor for On-Site Diagnosis of Tuberculosis," *Analyst*, revised.
2. S. Li, H. Cui, J. Wu, K. Yang, A. Wadhwa, S. Eda, and H. Jiang, "Dielectrophoresis-Enhanced Capacitive Immunosensor for Point-of-Care Serodiagnosis of Infectious Diseases," *Biosensors & Bioelectronics*, 2013, <http://dx.doi.org/10.1016/j.bios.2013.08.016>.
3. Q. Yuan and J. Wu, "Optimization of Planar Interdigitated Microelectrode Array for Biofluid Transport by AC Electrothermal Effect," *Microfluid. Nanofluid.*, 2013, doi: 10.1007/s10404-013-1231-8.
4. S. Li, Q. Yuan, B. Morshed, C. Ke, J. Wu and H. Jiang, "Dielectrophoretic Response of DNA and Fluorophore in Physiological Solution by Impedimetric Characterization," *Biosensors & Bioelectronics*, Vol. 41, pp. 649–655, 2013.
5. Q. Yuan and J. Wu, "Thermally Biased AC Electrokinetic Pumping Effect for Lab-on-a-chip Based Delivery of Biofluids," *Biomedical Microdevices*, Vol. 15, pp. 125-133, 2013.
6. K. Shenai, J. Wu and H. Cui, "Electro-thermal Scaling Constrains in Chip-Scale Power Inductors," *ECS Transactions*, 50(3), pp. 367-375, 2012.
7. X. Liu, K. Yang, A. Wadhwa, S. Eda, S. Li and J. Wu, "Development of an AC Electrokinetics-Based Immunoassay System for Serodiagnosis of Infectious Diseases," *Sensors & Actuators: A. Physical*, 171(2), pp. 406 – 413, 2011.
8. K. Yang and J. Wu, "Numerical study of In Situ Preconcentration for Rapid and Sensitive Nanoparticle Detection," *Biomicrofluidics*, 4(3), 034106, 2010.

9. P. Mruetusatorn, M. R. Mahfouz and J. Wu, "Investigations of DC Electroosmotic Micropumps for an Orthopaedic Implant Application," *Int'l J. Biomed. Eng. Tech.*, 3(1/2), pp. 173 – 185, 2010.
10. J. Kruttiventi, J. Wu and J.I. Frankel, "Obtaining time derivative of low frequency signals with improved signal to noise ratio," *IEEE Trans. Instru. Measu.*, 59(3), pp. 596 – 603, 2010.
11. M. Lian and J. Wu, "Ultra Fast Micropumping by Biased AC Electrokinetics," *Appl. Phys. Lett.*, 94, 064101.
12. M. Lian and J. Wu, "Microfluidic flow reversal at low frequency by AC electrothermal effect," *Microfluid. Nanofluid.*, 7(6), pp. 757-765, 2009.
13. P. Mruetusatorn, M. R. Mahfouz and J. Wu, "Low voltage dynamic control for DE electro-osmotic micropumps," *Sens. Actu. A*, 153(2), pp. 237-243, 2009.
14. J. Wu, "Advances of LOC-based Particle Manipulation by AC Electrical Fields," *Recent Patents on Electrical Engineering*, 1(3), pp. 178-187, Nov. 2008.
15. K. Yang and J. Wu, "Investigation of Microflow Reversal by AC Electrokinetics in Orthogonal Electrodes for Micropump Design," *Biomicrofluidics*, 2, 024101, 2008.
16. Selected for *Virtual Journal of Biological Physics Research*, 15(8), Apr. 15, 2008 issue.
17. *Virtual Journal of Nanoscale Science & Technology*. 17(16), Apr. 21, 2008 issue.
18. J. Wu, "Interactions of Electrical Fields with Fluids: Laboratory-on-a-chip Applications," *IET Nanobiotechnology*, 2(1), pp. 14–27, 2008.
19. J. Wu, "AC Electroosmotic Micropump by Asymmetric Electrode Polarization," *J. Appl. Phys.*, 103, 024907, 2008.
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21. J.I. Frankel, M. Keyhani, R.V. Arimilli, and J. Wu, "Locating Sudden Changes in Heat Flux Using Higher-Temporal Derivatives of Temperature," *Journal of Spacecraft and Rockets*, 45(3), pp. 631-635, 2008.
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27. *Virtual Journal of Nanoscale Science & Technology*, 15(24), June 18, 2007 issue.
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29. J. Wu and N. Islam, "A Simple Method to Integrate in-situ Nano-Particle Focusing with Cantilever Detection," *IEEE Sensors Journal*, 7(6), pp. 957-958, 2007.
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32. J. Wu and G.H. Bernstein, "A Microfabricated Transduction Coil for Inductive Deep Brain Stimulation," *Sens. & Trans. J.*, 69(7), pp.615-621, 2006. (Best Paper of the Year 2006)
33. J. Wu, Y. Ben and H.-C. Chang, "Particle Detection by Micro- Electrical Impedance Spectroscopy with Asymmetric-Polarization AC Electroosmotic Trapping," *J. Microfluidics & Nanofluidics*, 1(2), pp. 161-167, 2005.
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42. J. Wu, G. Xia, W. Gu, and P.A. Houston, "Analysis on High Temperature Characteristics of $\text{Al}_x\text{Ga}_{0.52-x}\text{In}_{0.48}\text{P}/\text{GaAs}$ HBTs," *Research and Progress of Solid-state Electronics*, 20(2), pp. 135 – 143, 2000.
43. J. Wu, G. Xia, W. Gu, and X. Zhang, "Analysis of Current Gain in $\text{Al}_{0.3}\text{Ga}_{0.22}\text{In}_{0.48}\text{P}/\text{GaAs}$ HBTs at High Temperature," *Chinese J. Semiconductors*, 21(1), pp. 56 – 63, 2000.
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45. X. Zhang, Y. Hu, J. Wu, Z. Chen, G. Xia, Y. Xu, Z. Chen, Y. Gui, and J. Chu, "Influence of Emitter Deep Levels on the Performance of $\text{AlGaInP}/\text{GaAs}$ Heterojunction Bipolar Transistors," *Acta Physica Sinica*, 48(3), p. 556 – 560, 1999.
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Conference Proceedings:

1. A. Wadhwa, S. Li, .K Yang, X. Liu, J. Bannantine, S. Eda, and J. Wu, Development of a Lab-on-a-Chip Immunoassay System for Diagnosis of Johnne's Disease, 11th Int'l Colloq. Paratuberculosis, pp. 80-81, Feb. 5-10, 2012, Sydney, Australia.
2. K. Shenai, G. Bernstein, and J. Wu, Efficient Integrated DC-DC Power Converters - Advanced Technologies and New Challenges, #77, Proc. IEEE EnergyTech 2011 Conference, May 25-26, 2011, Cleveland, OH, doi: 10.1109/EnergyTech.2011.5948531
3. K. Yang, X. Liu, Q. Yuan, J. Wu, A. Wadhwa and S. Eda, Development Of An AC Electrothermal Immunoassay Labchip For Accelarated Diagnosis, 6th International Conference on Microtechnologies in Medicine and Biology (MMB 2011), 4 - 6 May 2011, in Lucerne, SWITZERLAND
4. J. Wu, K. Yang and Q. Yuan, On Chip Micropumping For Biofluids By Temperature Biased AC Electrothermal Effect, IMECE 2010, November 12-18, 2010, Vancouver, Canada

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10. J.I. Frankel, R.V. Arimilli, M. Keyhani, and J. Wu, "Heating Rate dT/dt Measurements Developed from In-Situ Thermocouples Using a Voltage-Rate Interface for Advanced Thermal Diagnostics," AIAA Aerodynamics Measurement Technology and Ground Testing Conf., AIAA2006-3636, June 5-8 2006, San Francisco, CA.
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15. N. Islam, M. Lian, S. Swaminathan and J. Wu, "Micro/Nano- Particulate Fluid Manipulation in AC Electro-Kinetic Lab-on-a-Chip," 2nd ASM - IEEE EMBS Conf. Bio, Micro & Nanosyst., pp. 62-65, Jan. 15 – 18, 2006, San Francisco, CA, USA.
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17. J. Wu and H.-C. Chang, "Asymmetrically Biased AC Electrochemical Micropump," AIChE annual meeting 2004, 181c, Nov. 7 – 12, Austin, TX, USA.

18. J. Wu and H.-C. Chang, "Long-Range Electrokinetic Bioparticle Trap," 134b, as above.
19. J. Wu and H.-C. Chang, "Micro Electrical Impedance Spectroscopy for Particle Detection," ASME Proc. 2nd Int'l Conf. Micro. Mini., June 17 – 19, 2004, pp. 865 – 868, Rochester, NY, USA.
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Presentations and Posters:

1. K. Shenai, J. Wu, and H. Cui, Electro-Thermal Circuit Modeling of Power Inductors, PRiME 2012, #2560, Honolulu, Hawaii (October 7-12, 2012)
2. A. Wadhwa, S. Li, .K Yang, X. Liu, J. Bannantine, S. Eda, and J. Wu, Development of a Lab-on-a-Chip Immunoassay System for Diagnosis of Johne's Disease, 11th International Colloquium on Paratuberculosis, February 5-10, 2012, Sydney, Australia
3. A. Wadhwa, K. Yang, X. Liu, J. P. Bannantine, S. Eda, and J. Wu, Development of a Lab-on-a-Chip Immunoassay System for Diagnosis of Johne's Disease, Johne's Disease Integrated Program 2011 annual conference, July 10-11, 2011, New Orleans, LA
4. X. Liu, K. Yang, A. Wadhwa, S. Li, S. Eda, and J. Wu, Point-of-Care Immunoassay Kit for Serodiagnosis of Mycobacterial Infections, #2593, 220th ECS Meeting, Boston, MA Oct. 9 - 14, 2011

5. S. Li, X. Liu, J. Wu, and C. Ke, Dielectrophoretic Response of DNA in PBS Buffer using Fluorescence and Impedimetric Measurements, #2626, 220th ECS Meeting, Boston, MA Oct. 9 - 14, 2011
6. K. Shenai, J. Wu, H. Cui, and K. Shah, Thermal Constraints in Integrated Power Inductors, #2199, 220th ECS Meeting and Electrochemical Energy Summit, Boston, MA Oct. 9 - 14, 2011
7. J. Wu, Technologies and Challenges for Integrated Power Inductors, #2197, 220th ECS Meeting and Electrochemical Energy Summit, Boston, MA Oct. 9 - 14, 2011
8. S. Swaminathan, J. Wu, S. Markus, G.H. Bernstein, and W. Porod, "Fabrication of Nano-Injection Needles for Neural Pathway Study in Mice," ORNL CNMS 2006 User Meeting, June 14-16, 2006, Oak Ridge, TN.
9. N. Islam, M. Lian, J. Wu, R. Zhou, P. Wang and H.-C. Chang, "Bio/nano- particle Capture, Concentration and Detection by AC Electrokinetics," ORNL CNMS 2006 User Meeting, June 14-16, 2006, Oak Ridge, TN
10. N. Islam and J. Wu, "AC Electro-osmotic Micropump using Asymmetric Polarization," ASME Nanomechanics—Sensors & Actuators, May 16 – 18, 2005, Knoxville, TN, USA
11. H.-C. Chang, J. Wu and Y. Ben, "Electrokinetic Flow and Particulate Self-Assembly Patterns on Electrodes — Spatial Symmetry Breaking Due to Double-Layer Phase Dynamics," AIChE annual meeting 2004, Nov. 7 – 12, Austin, TX, USA.
12. J. Wu, V. Quinn, and G.H. Bernstein, "A Detachable Transformer with Microfabricated Secondary Coil for Powering MEMS Devices," Magnetics 2004, June 9–10, 2004, Denver, CO, USA.
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