Curriculum Vitae

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RESEARCH INTEREST

Three-dimensional Micro/Nanofabrication and Nanometrology, Design and Manufacturing of Photonic/phononic Metamaterials and Devices, Energy Transfer and Mass Transport Phenomena in Micro/nano/biosystems.

EDUCATION

Ph.D. 2002	Pennsylvania State University, Industrial and Manufacturing Engineering
M.S., 1996	Nanjing University, Physics, China
B.S., 1993	Nanjing University, Physics, China

PROFESSIONAL EXPERIENCE

9/07-Present	Assistant Professor, Mechanical Engineering Department, Northwestern University
10/03-8/07	Senior Research Scientist/Chief Operating Officer, NSF Nanoscale Science and Engineering Center for Scalable and Integrated Nanomanufacturing (SINAM), University of California at Berkeley
1/00-9/03	Research Engineer, Mechanical and Aerospace Engineering Department, University of California at Los Angeles
1/98-12/99	Graduate Student Research Assistant, Industrial and Manufacturing Engineering Department, Pennsylvania State University

AFFILIATIONS

Member of ASME and ASM.

PUBLICATIONS

Journal Publications

1. W. Srituravanich, L. Pan, Y. Wang, C. Sun, D. Bogy, X. Zhang, "Flying Plasmonic Lens at Near Field for High Speed Nano-lithography", ***Nature Nanotechnology***, Accepted for Publication,
2. Y. Wang, W. Srituravanich, C. Sun, and X. Zhang, "Plasmonic Nearfield Scanning Probe with High Transmission ", ***Nano Letters***, 8 (9), 3041–3045, 2008.
3. J. Yao, Z. Liu, Y. Liu, Y. Wang, C. Sun, G. Bartal, A. Stacy and X. Zhang, "Optical Negative Refraction in Bulk Metamaterials", ***Science***, Vol.321, 930, 2008
4. H. Lee, Z. Liu, Y. Xiong, C. Sun, X. Zhang, "Design, fabrication and characterization of a Far-field Superlens", ***Solid State Communication***, 146, 202, 2008
5. S. Zhang, D. A. Genov, C. Sun, and X. Zhang, "Cloaking of Matter Waves", ***Physical Review Letters***, 100, 123002, 2008
6. D. Wu, Z. Liu, C. Sun, and X. Zhang, "Super-Resolution Imaging by Random Adsorbed Molecule Probes", ***Nano Letters***, 8 (4), 1159–1162, 2008
7. S. Wang, S. Szobota, Y. Wang, M. Volgraf, Z. Liu, C. Sun, D. Trauner, E. Y. Isacoff, and X. Zhang, "All Optical Interface for Parallel, Remote, and Spatiotemporal Control of Neuronal Activity", ***Nano Letters***, 7, 3859, 2007
8. H. Lee, Z. Liu, Y. Xiong, C. Sun and X. Zhang, "Development of optical hyperlens for imaging below the diffraction limit", ***Optics Express***, 15, 15886, 2007
9. Y. Xiong, Z. Liu, C. Sun, and X. Zhang, "Two-Dimensional Imaging by Far-Field Superlens at Visible Wavelengths", ***Nano Letters***, 7 (11), 3360-3365, 2007
10. V. Fokin, M.Ambati, C. Sun, and X. Zhang, "Method for retrieving effective properties of locally resonant acoustic metamaterials", ***Physical Review B***, 76, 144302, 2007
11. H. Liu, D. A. Genov, D. M. Wu, Y. M. Liu, Z. W. Liu, C. Sun, S. N. Zhu, and X. Zhang, "Magnetic plasmon hybridization and optical activity at optical frequencies in metallic nanostructures", ***Physical Review B***, 76, 073101, 2007
12. X. Zhang, D. Wu, C. Sun, and X. Zhang, "Artificial phonon-plasmon polariton at the interface of piezoelectric metamaterials and semiconductors", ***Physical Review B***, 76, 085318, 2007
13. Y. Xiong, Z. Liu, S. Durant, H. Lee, C. Sun, and X. Zhang, "Tuning the far-field superlens: from UV to visible", ***Optics Express***, 15, 7095, 2007
14. Z. Liu, S. Durant, H. Lee, Y. Pikus, Y. Xiong, C. Sun and X. Zhang, "Experimental studies of far-field superlens for sub-diffractional optical imaging", ***Optics Express***, 15, 6947, 2007
15. M. Ambati, N. Fang, C. Sun, and X. Zhang, "Surface resonant states and superlensing in acoustic metamaterials", ***Physical Review B***, 75, 195447, 2007
16. Z. Liu, H. Lee, Y. Xiong, C. Sun, and X. Zhang, "Optical Hyperlens Magnifying Sub-diffraction-limited Objects", ***Science***, 315, 1686, 2007.
17. S. Wang, D. Pile, C. Sun, X. Zhang, "Nano-pin plasmonic resonator arrays and its optical properties", ***Nano Lett.,*** 7 (4), 1076 -1080, 2007.
18. J. Mai, C. Sun, S. Li, and X. Zhang, "A Microfabricated Platform Probing Cytoskeleton Dynamics Using Multidirectional Topographical Cues", ***Biomedical Microdevices***, 9 (4), 523-531, 2007.
19. W. Wu, E. Kim, E. Ponizovskaya, Y. Liu, Z. Yu , N. Fang, Y. Shen, A. Bratkovsky, W. Tong, C. Sun, X. Zhang, S. Wang and S. Williams, "Optical metamaterials at near and mid-IR range fabricated by nanoimprint lithography", ***Appl. Phys. A***, 87, 143, 2007
20. W. Wu, Y. Liu, E. Kim, Z. Yu, N. Fang, C. Sun, X. Zhang, R. Shen, S. Wang and S. Williams, "Optical Metamaterials at Mid-IR Range Fabricated by Nanoimprint Lithography", ***Applied Physics Letter***, 90, 063107, 2007.
21. Y. Liu, N. Fang, D. Wu, C. Sun, and X. Zhang, "Symmetric and antisymmetric modes of electromagnetic resonators", ***Applied Physics A***, 82, 171, 2007.
22. Z. Liu, S. Durant, H. Lee, Y. Pikus, N. Fang, Y. Xiong, C. Sun, and X. Zhang, "Far-field Optical Superlens Microscopy", ***Nano Lett.***, 7, 403, 2007.

23. Z. Liu, S. Durant, H. Lee, Y. Xiong, Y. Pikus, C. Sun and X. Zhang, "Near-field Moire effect mediated by surface plasmon polariton excitation", ***Optics Letters***, 32, 629, 2007.
24. H. Liu, D. Genov, D. Wu, Y. Liu, J Steele, C. Sun, S. Zhu, and X. Zhang, "Magnetic plasmon propagation along a chain of connected subwavelength resonators at infrared frequencies", ***Phys. Rev. Lett.,*** 97, 243902, 2006.
25. N. Fang, D. Xi, J. Xu, M. Ambati, W. Srituravanich, C. Sun and X. Zhang, 2006 "Ultrasonic Metamaterials with Negative Stiffness", ***Nature Materials,*** Vol.5 p452, 2006.
26. D. Wu, N. Fang, C. Sun, X. Zhang, " Stiction problems in releasing of 3D microstructures and its solution", ***Sensors and Actuators A***, Vol.128 pp109-115, 2006.
27. K. Su, S. Durant, J. M. Steele, Y. Xiong, C. Sun, and X. Zhang, "Raman Enhancement Factor of a Single Tunable Nanoplasmonic Resonator", ***J. Phys. Chem. B***, 110(9); 3964-3968, 2006
28. W. Srituravanich, S. Durant, H. Lee, C. Sun, and X. Zhang, "Deep subwavelength nanolithography using localized surface plasmons on planar silver mask", ***J. Vac. Sci. Tech.*** **B** 23(6), pp2636-2639, 2005
29. H. Lee, Y. Xiong, N. Fang, W. Srituravanich, S. Durant, M. Ambati, C. Sun and X. Zhang, "Realization of optical superlens imaging below the diffraction limit", ***New J. Phys.,*** 7, 255, 2005
30. N. Fang, H. Lee, C. Sun, X. Zhang, "Sub-Diffraction-Limited Optical Imaging with a Silver Superlens", ***Science***, Vol 308, 2005,pp534-537
31. C. Sun, N. Fang, D.M. Wu and X. Zhang, "Projection micro-stereolithography using digital micro-mirror dynamic mask", ***Sensors and Actuators*** **A**: Physical, Volume 121, Issue 1, pp113-120, 2005.
32. Z. Liu, J. M. Steele, W. Srituravanich, Y. Pikus, C. Sun, and X. Zhang, "Focusing Surface Plasmons with a Plasmonic Lens", ***Nano Lett.*****,** Vol. 5, No. 9, pp1726-1729, 2005
33. Srituravanich, W., Fang, N., Sun, C., and Zhang, X., 2004, "Sub-100 nm lithography using ultra-short wavelength of surface plasmons", ***J. Vac. Sci. Tech.*** **B** 22(6), 2004, 3475-3478.
34. N. Fang, C. Sun, and X. Zhang, 2004, "Diffusion-Limited Photo Polymerization in Scanning Micro-Stereolithography", ***Applied Physics A***, Vol. 79 (8), 2004, 1839-1842.
35. W. Srituravanich, N. Fang, C. Sun, and X. Zhang, 2004, "Plasmonic Nanolithography", ***Nano. Lett.*****,** Vol. 4, No.6, 2004, 1085-1088.
36. X. Zhang, C. Sun, N. Fang, "Manufacturing at Nanoscale: Top-down, Bottom-up and System Engineering", ***J. Nanoparticle Res.,*** Vol. 6 (1), 2004, 125-130.
37. D. Wu, N. Fang, C. Sun, X. Zhang, W. Padilla, D. Basov, D. Smith, and S. Schultz, "Terahertz Plasmonic High Pass Filter", ***Appl. Phys. Lett***., Vol. 83(1), 2003, 201-203.
38. C. Sun, and X. Zhang, "The Influences of the material Properties on ceramic Microstereolithography", ***Sensors and Actuators A***, Vol. 101, 2002, pp364-370.
39. C. Sun, and X. Zhang, "Experimental and Numerical Investigations on Microstereolithography of Ceramics", ***J. Appl. Phys.***, Vol. 92, No. 8, 2002, p4796.
40. X. Zhang, J. Wen, and C. Sun, "Thermal and carrier transport originating from photon recycling and non-radiative recombination in laser micromachining of GaAs thin films", Applied Physics A, 76 (2), pp261-267, 2002.
41. D. Wu, N. Fang, C. Sun, and X. Zhang, "Adhesion Force of Polymer Three-dimensional Microstuctures Fabricated by Micro-stereolithography, ***Appl. Phys. Lett.***, Vol 81(22), 2002, 3963-5
42. X. Jiang, C. Sun, X. Zhang, B. Xu, and Y. Ye, "Microstereolithography of lead zirconate titanate thick film on silicon substrate**",** ***Sensors and Actuators*** **A**, vol.A87, 2000. 72-7.
43. X. Zhang, X. Jiang, C. Sun, **"**Micro-stereolithography of polymeric and ceramic microstructures", ***Sensors and Actuators A***, vol.A77, 1999, 149-56.
44. C. Sun, M. Wang, van Esch J, et al. "Observation of instability of faceted crystals in lipid monolayers", ***Phys. Lett. A*** 237 (4-5), 1998, 247
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46. C. Sun, M. Wang, W. J.P. van Enckevort, N. Ming, P. Bennema, H. Ringsdorf, R. J. M. Nolte, "Instability of hexagonal crystals in lipid monolayers", ***J. Nanjing Univ. (Nat. Sci.)*****,** 530, 1996, 32.
47. M. Wang, C. Sun, R. Peng, N. Ming, J. van Esch, H. Ringdorf, and P. Bennema, "Dynamic behavious of fractal-like domains in monolayers", ***Phys. Rev. E***, 53, 1996, 6121
48. M. Wang, C. Sun, W. J. P. van Enscevort, J. van Esch, G. Wildburg, R. Peng, N. Ming, P. Bennema, H. Ringsdorf, and R. J. M. Notle, "Pattern formation in lipid monilayers under illuminations", ***Phys. Rev. E***, 53, 1996, 2580.

49. S. Chen, H. Shen, C. Sun, Y. Huang, Z. Yang, Y. Zhu, X. Wang, and Y. Wang, "Studies of possible phase transition in the range 92-285K for $Bi_{1.7}Pb_{0.3}Sr_2CaCu_3O_Y$", ***Phase Transitions***, 53, 1995, 53
50. S. Chen, H. Shen, L. Bai, C. Sun, Z. Yang, Y. Zhu, Y. Wang, "XRD study on $Bi_{1.7}Pb_{0.3}Sr_2CaCu_3O_Y$", Chinese ***Journal of Low Temperature Physics***, 16, 1994, 359.
51. S. Chen, H. Shen, L. Bai, C. Sun, Z. Yang, Y. Zhu, and Y. Wang, "Anomalies of anisotropic thermal parameters in $Bi_{1.7}Pb_{0.3}Sr_2CaCu_3O_Y$", ***Physics Status of Solidi (a)***, K47, 1994, 145

BOOK CHAPTERS

1. Zhang, X., Ambati, M., Fang, N., Lee, H., Liu, Z., Sun, C. and Xiong, Y., "Optical superlens" in Surface Plasmon Nanophotonics, Kik, P. G. and Brongersma, M. L. (Editors) Springer (2007).

Peer-Reviewed Proceedings:

1. Y. Wang, C. Sun, N. Fang and X. Zhang,"Towards High-speed Near-Field Scanning Optical Microscope", ASME International Mechanical Engineering Congress and RD&D Expo, November 13-19, Anaheim, CA, 2004.
2. W. Srituravanich, N. Fang, C. Sun, S. Durant, M. Ambati, and X. Zhang, "Plasmonic Lithography", 2004 ASME Integrated Nanosystems, September 22-24, Pasadena, CA, 2004.
3. W. Srituravanich, N. Fang, C. Sun and X. Zhang,"Sub-100 nm periodic nanodot arrays using plasmonic lithography", Proc. of 48th International Conference on Electron, Ion, Photon Beam Technology and Nanofabrication, June 1-4, San Diego, CA, 2004, pp.515-516.
4. D. Wu, N. Fang, C. Sun, X. Zhang, W. Padilla, D. Basov, D. Smith, and S. Schultz, "Artificial Plasmonic Metamaterial Fabricated by Micro-Stereolithography", Micro-Electro-Mechanical Systems (MEMS) - 2003. ASME International Mechanical Engineering Congress and Exposition. ASME. 2003, pp.3-9. New York, NY, USA
5. W. Srituravanich, N. Fang, C. Sun, Q. Luo, X. Zhang, Subwavelength nanolithography using surface plasmons**;** Nanotechnology, 2003. IEEE-NANO 2003. 2003 Third IEEE Conference on , Volume: 2 , 12-14 Aug. 2003, 609 - 611
6. C. Sun, X. Jiang and X. Zhang, "Experimental and numerical study on micro-stereolithography of ceramics", Proceeding of 99' ASME International Mechanical Engineering Congress and Exposition, Micro-electro-mechanica Systems, 1999, p339-46.
7. X. Zhang, X. Jiang, C. Sun, Micro-stereolithography for MEMS. *Micro-Electro-Mechanical Systems (MEMS) - 1998. ASME International Mechanical Engineering Congress and Exposition. ASME. 1998, pp.3-9. New York, NY, USA.*
8. X. Zhang, X. Jiang, C. Sun, A. Tam, Micro-scale free surface rapid prototyping. [Conference Paper] *Technical Digest. Summaries of papers presented at the Conference on Lasers and Electro-Optics. Postconference Edition. CLEO '99. Conference on Lasers and Electro-Optics (IEEE Cat. No.99CH37013). Opt. Soc. America. 1999, pp.513-14. Washington, DC, USA.*

Invited Oral Presentation:

1. 2006 NSF/DARPA National Nanotechnology Network Workshop, (Arlington, VA, Oct . 20, 2006)
2. Panel Session "Where's Nano?", 2006 National Science Foundation DMI Grantee Conference, (Rolla, MO, July 25, 2006)
3. Seminar, Mechanical Engineering Department, Michigan University, (Ann Arbor, MI, May 1, 2006)
4. Seminar, Industrial Engineering Department, Purdue University, (West Lafayette, IN, April 26, 2006)
5. SEMATECH Meeting: Analytical Lab Managers Council, (Sunnyvale, CA, April 19, 2006)
6. 39th National Heat Transfer Conference, panel discussion on "Challenges and Opportunities in Electronics/Optolectronics Fabrication", (San Francisco, CA, July 19, 2005)
7. 2nd U.S.-Korea Forum on Nanotechnology, (Los Angeles, CA, Feb. 17-18, 2005)
8. 2004 ASM (American Society of Materials) International Symposium, (Columbus, OH, Oct. 18-21, 2004)