

## 26. Publications

### Journal Articles, Published

1. T. Barwicz, M.A. Popovic, P.T. Rakich, M.R. Watts, H.A. Haus, E.P. Ippen, and H.I. Smith "Microring-resonator-based add-drop filters in SiN: fabrication and analysis," *Optics Express*, 12: 1437-1442 (2004).
2. F. J. Castaño, C. A. Ross, A. Eilez, W. Jung, and C. Frandsen, "Magnetic configurations in 160-520 nm diameter ferromagnetic rings", *Physical Review B*, 69: 144421 (2004).
3. M. Qi, E. Lidorikis, P. T. Rakich, S. G. Johnson, J.D. Joannopoulos, E. P. Ippen and H. I. Smith, "A three-dimensional optical photonic crystal with designed point defects" *Nature Magazine*, 429: 538-542, (2004).
4. F.M. Ross, M. Kammler, M.E. Walsh, M.C. Reuter, "In situ reflection electron microscopy of Ge island formation on mesa structures", *Microscopy and Microanalysis* 10: 104 (2004)
5. H. I. Smith, R. F. Pease, "Reaching for the bottom: The evolution of EIPBN", *J. Vac. Sci. Technol. B* 22(6): 1-2, (2004).
6. K. Murooka, M. H. Lim and H. I. Smith, "System optimization of membrane mask distortion correction based on fourier analysis", *J. Vac. Sci. Technol. B* 22(5): 2309-2313 (2004).
7. R. Menon, A. Patel, E. E. Moon, and H. I. Smith, "Alpha-prototype system for zone-plate-array lithography", *J. Vac. Sci. Technol. B* 22(6): 3032-3037 (2004).
8. W. Jung, F. J. Castano, C. A. Ross, R. Menon, A. Patel, E. E. Moon and H. I. Smith, "Elliptical-ring magnetic arrays fabricated using zone-plate-array lithography", *J. Vac. Sci. Technol. B* 22(6): 3335-3338 (2004).
9. C. Zanke, M. Qi and H. I. Smith, "Large-area Patterning for 2D and 3D Photonic Crystals via Coherent Diffraction Lithography (CDL)", *J. Vac. Sci. Technol. B* 22(6): 3352-3355 (2004).
10. S. Assefa, G. S. Petrich, L. A. Kolodziejski, M. K. Mondol, and H. I. Smith, "Fabrication of photonic crystal waveguides composed of a square lattice of dielectric rods", *J. Vac. Sci. Technol. B* 22(6): 3363-3365 (2004).
11. E. E. Moon, L. Chen, P. Everett, M. Mondol, H. I. Smith, "Nanometer gap measurement and verification via the chirped-Talbot effect, *J. Vac. Sci. Technol. B* 22(6): 3378-3381 (2004).
12. R. Menon, E. E. Moon, M. K. Mondol, F. J. Castano, H. I. Smith, "Scanning-spatial-phase alignment for zone-plate-array lithography", *J. Vac. Sci. Technol. B* 22(6): 3382-3385 (2004).
13. F. Zhang and H. I. Smith, "Partial Blanking of an Electron Beam Using a quadrupole Lens", *J. Vac. Sci. Technol. B* 22(6): 133-137 (2004).
14. S. Assefa, P. T. Rakich, P. Bienstman, S. G. Johnson, S. S. Petrich, J. D. Joannopoulos, L. A. Kolodziejski, E. P. Ippen, and H. I. Smith, "Guiding 1.5  $\mu\text{m}$  Light in Photonic Crystals Based on dielectric Rods", *Applied Physics Letters*, 85(25): 6110-6112 (2004).

15. T. Barwicz, M. A. Popović, P. T. Rakich, M. R. Watts, H. A. Haus, E. P. Ippen, and H. I. Smith, "Microring-resonator-based add-drop filters in SiN: fabrication and analysis," *Optics Express*, 12(7): 437, (2004).

#### **Journal Articles, Submitted for Publication**

1. A. Yu, T. Savas, S. Taylor, A. Guiseppe-Elie, H. I. Smith, F. Stellacci, "Supramolecular Nano Contact-Printing: using DNA as a moveable type", Submitted to *Nature*.
2. R. Menon, "Experimental Characterization of Focusing by High-Numerical-Aperture Zone Plates", In Process to *J. Opt. Soc. Amer.*

#### **Published Conference Proceedings**

1. D. Gil, R. Menon, H. I. Smith, "The promise of diffractive optics in maskless lithography", *Microelectronic engineering*, 73-74 (2004) 35-41.

#### **Conference Publications, Awaiting Publication**

1. T. Barwicz, M. A. Popoviae, P. T. Rakich, M. R. Watts, H. Haus, E. Ippen and H. I. Smith, "Fabrication and analysis of add-drop filters based on microring resonators in SiN", submitted to OFC:04 (Optical Fiber Communication Conference) in Los Angeles CA from Feb 22-27, (2004).
2. Y. Avrahami, M. A. Popovic, T. Barwicz, P. T. Rakich, M. R. Watts, F. Lopez-Royo, F. Giancometti, M. Beals, L. C. Kimerling, H. I. Smith, H. A. Haus, H. L. Tuller, G. Barbastathis, "MEMS enabled optical switching with high-index contrast ring resonator filters. (submitted to OFC:04 (Optical Fiber communication Conference) in Los Angeles, CA. Feb 22-27, (2004).
3. H. J. In, W. Arora, T. Buchner, S. M. Jurga, H. I. Smith, G. Barbastathis, "The Nanostructured Origami 3D Fabrication and Assembly Process for Nanomanufacturing", *IEEE Nano 04*, Munich, Germany.

#### **Conference Presentations:**

1. A. L. Giermann, C. V. Thompson and H. I. Smith, "The Effects of Topography on the Formation of Ordered Arrays of Metallic Nano-particles" Presented at the 2004 Electrochemical Society meeting.
2. B. Onoa (a), M. Walsh (b), T. B. O'Reilly (b), H. Smith (b), "Carbon nanotubes with prescribed lengths and unaltered properties" MRS meeting, Boston, (2004).
3. C. Ross; F.J. Castano, W. Jung, D. Morecroft, J. Y. Cheng, F. Iliovski, M. Shnayderman, K. Nielsch, R. Krishnan, J.W.A. Robinson H. I. Smith, "Fabrication of magnetic tubes, rings and dots using novel processes", MRS meeting, Boston, MA. Dec. (2004).
4. J. Cheng, M. Shnayderman, A. Mayes, E. Thomas, H. I. Smith, J. Vancso, C. A. Ross, "Controlling local self-assembly of block copolymers using topographical substrates", MRS meeting, Boston (2004)
5. J. Cheng, H. I. Smith, C. A. Ross, "Registering the two-dimensional positions of block copolymer domains on substrates using templated self-assembly", MRS meeting, Boston (2004).

6. J., Wonjoon, Castano, F., Morecroft, D., Menon, R., Smith, H., Ross, C., "Properties of Exchange-biased Elliptical Magnetic Rings Fabricated Using Zone-Plate-Array Lithography", MRS meeting, Boston, MA (2004)
7. G. Barbastathis, H. J. In, W. Arora, and H. I. Smith, "Nanostructured Origami", SPIE Annual Meeting, Denver, CO, August 2-6, (2004).
8. G. Barbastathis, H. J. In, W. Arora, T. Buchner, and H. I. Smith, "The Nanostructured Origami™ 3D Fabrication and Assembly Process (invited talk)", 19<sup>th</sup> Annual Meeting of the American Society for Precision Engineering (ASPE), Orlando, FL. (2004).
9. W. Arora, H. J. In, H. I. Smith, and G. Barbastathis, "The Nanostructured Origami™ 3D Fabrication and Assembly Process (accepted for presentation to the 24<sup>th</sup> Army Science Conference, Orlando, FL, (2004).
10. H. J. In, W. Arora, H. I. Smith, and G. Barbastathis, "Fabrication of 3D nanostructures via Nanostructured Origami™ Process", Presented in 2<sup>nd</sup> International Symposium on Nano Manufacturing (ISNM), Daejeon, Korea, Nov. 3-5, (2004).
11. W. Arora, H. J. In, H. I. Smith and G. Barbastathis, "Nanostructured Origami™ 3D fabrication and assembly process using strain-induced folding", to be presented in 2<sup>nd</sup> International Symposium on Nano Manufacturing (ISNM), Daejeon, Korea, Nov. 3-5, (2004).
12. H. Smith, "Zone-Plate-Array lithography (ZPAL): Optical Maskless Lithography for cost-Effective Patterning", presentation at the SPIE microlithography conference, March 2<sup>nd</sup>. Paper #5751-36. (2004)

**Thesis:**

1. A. A. Patel, "The Development of a Prototype Zone-Plate-Array Lithography (ZPAL) System", M. S. Thesis, Department of Electrical Engineering and Computer Science, May 2004.
2. C. Caramana, "Pattern-Placement-Error Detection for Spatial-Phase-Locked E-Beam Lithography (SPLEBL)", M. S. Thesis, Department of Electrical Engineering and Computer Science, June 2004.
3. E. Moon, "Interferometric-Spatial-Phase Imaging for Sub-Nanometer Three-Dimensional Positioning", Ph.D. Thesis, Department of Electrical Engineering and Computer Science, September 2004.
4. M. Walsh, "On the design of lithographic interferometers and their application", Ph.D., Department of Electrical Engineering and Computer Science, September, 2004.