

## REFEREED JOURNAL PUBLICATIONS (Total: 102)

- 1) I. O. Mirza, S. Shi, **D. W. Prather**, "High Transmission in a Left-Handed Material Slab Using a Right-Handed Material Coating," (*In press*).
- 2) **D. W. Prather**, S. Shi, J. Murakowski, G. J. Schneider, A. Sharkawy, C. Chen, and B. Miao, "Photonic Crystal Structures and Applications: Perspective, Overview, and Development (**Invited Paper**)," *IEEE Journal of Selected Topics in Quantum Electronics*, Vol. 12, No. 6, pp. 1416-1437, November (2006).
- 3) B. Miao, C. Chen, A. Sharkway, S. Shi, **D. W. Prather** "Two bit optical analog-to-digital converter based on photonic crystals" *Optics Express*, Vol. 14, No. 17, p 7966-7973, (2006).
- 4) Z. Lu, S. Shi, J. A. Murakowski, G. J. Schneider, C. A. Schuetz, and **D. W. Prather**, "Experimental demonstration of self-collimation inside a three-dimensional photonic crystal," *Physical Review Letters*, Vol. 96, pp. 1739021-1739024, (2006).
- 5) M.J. McFadden, M. Iqbal, T. Dillon, R. Nair, T. Gu, **D. W. Prather**, Haney MW, "Multiscale free-space optical interconnects for intrachip global communication: motivation, analysis, and experimental validation" *Applied Optics*, Vol. 45, pp. 6358-6366, (2006) .
- 6) I. O. Mirza, S. Shi, Z. Lu, **D. W. Prather**, "Calculation of the Negative Refractive Index of a LHM slab by The Free-Space Mapping of the Laterally Shifted Refracted Beam," *Microwave and Optical Technology Letters*, Vol. 48, pp.593-596, (2006).
- 7) FC Ndi, J Toulouse, T Hodson , **D. W. Prather** "Optically tunable silicon photonic crystal microcavities" *Optics Express*, Vol.14, pp. 4835-4841, (2006).
- 8) S.K. Lohokare ,Z. L. Lu , C. A. Schuetz , **D. W. Prather** "Electrical characterization of flip-chip interconnects formed using a novel conductive-adhesive-based process" *IEEE Transactions on Advanced Packaging*, Vol. 29, pp. 542-547, (2006).
- 9) Z. Lu, J. A. Murakowski, C. A. Schuetz, S. Shi, G. J. Schneider, and **D. W. Prather**, "perfect lens makes a perfect trap," *Optics Express*, Vol.14, pp. 2228-2235, (2006).
- 10) Shouyuan Shi, Ge Jin and **D. W. Prather**, "Electromagnetic simulation of quantum well structures", *Optics Express*, Vol. 14, No.6, pp. 2459-2472, (2006) .
- 11) O.V. Sulima, K. Swaminathan, T.F. Refaat, N.N. Faleev, A.N. Semenov, V.A. Solov'ev, S.V. Ivanov, M.N. Abedin, U.N. Singh and **D. W.Prather** "2.4  $\mu\text{m}$  cutoff wavelength AlGaAsSb/InGaAsSb phototransistors" *Electronics Letters* 5th Vol. 42 No. 1, January (2006).
- 12) Z. L. Lu, S.Y. Shi, C. A. Schuetz, J. Murakowski, and **D. W. Prather**, "Three-dimensional photonic crystal flat lens by full 3D negative refraction," *Optics Express*, Vol. 13, pp. 5592-5599, (2005).
- 13) Z. Lu, J. A. Murakowski, C. A. Schuetz, S. Shi, G. J. Schneider, and **D. W. Prather**, "Three-dimensional subwavelength imaging by a photonic-crystal flat lens using negative refraction at microwave frequencies," *Physical Review Letters*, Vol. 95, pp. 153901-153905, (2005).
- 14) Z. Lu, C. A. Schuetz, S. Shi, C. Chen, G. P. Behrmann, and **D. W. Prather**, "Experimental demonstration of self-collimation in low index contrast photonic crystals in the millimeter wave regime," *IEEE Transactions on Microwave Theory and Techniques*, Vol.53, pp. 1362-1368, (2005).
- 15) Z. Lu, S. Shi, C. A. Schuetz, **D. W. Prather**, "Experimental demonstration of negative refraction imaging in both amplitude and phase," *Optics Express*, Vol.13, pp. 2007-2012, (2005).

- 16) Z. Lu, C. Chen, C. A. Schuetz, S. Shi, J. A. Murakowski, G. J. Schneider, and **D. W. Prather**, "Sub-wavelength imaging by a flat cylindrical lens using optimized negative refraction," *Applied Physics Letters*, Vol. 87, pp. 091907-091910, (2005).
- 17) C. Lin, Z. Lu, G. J. Schneider, and **D.W. Prather**, "Experimental demonstration of prism coupling of infrared wave into planar photonic crystal waveguide devices" *Optical Engineering*, Vol. 44, pp. 114602, (2005).
- 18) C. Lin, C. Chen, S. Shi, Z. Lu, and **D. W. Prather**, "CO<sub>2</sub> laser light characterization of low loss planar-photonic crystals self-collimated waveguides," *Optical Engineering*, Vol. 44, 114601, (2005).
- 19) F. G. Ndi, J. Toulouse, T. Hodson, and **D.W. Prather** "All-optical switching in silicon photonic crystal waveguides by use of the plasma dispersion effect" *Optics Letters*, v 30, n 17, , p 2254-2256, (2005).
- 20) B. L. Miao, P. Yao, J. Murakowski, and **D. W. Prather**, "Fabrication of silicon microring resonators with narrow coupling gaps", *Journal of Microlithography, Microfabrication and Microsystems*, v 4, n 2, April/June, p 1-4, (2005).
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- 22) S. Y. Shi, C. H. Chen, and **D. W. Prather**, "Revised plane wave method for dispersive material and its application to band structure calculations of photonic crystal slabs," *Applied Physics Letters*, Vol. 86, pp. 431041-431043, (2005).
- 23) A. Sharkawy, D. Pustai, S. Y. Shi, and **D. W. Prather**, "Modulating dispersion properties of low index photonic crystal structures using microfluidics," *Optics Express*, Vol. 13, pp. 2814-2827, (2005).
- 24) C. A. Schuetz, J. Murakowski, G. J. Schneider, and **D. W. Prather**, "Radiometric millimeter-wave detection via optical upconversion and carrier suppression," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 53, pp. 1732-1738, (2005).
- 25) I. O. Mirza, S. Shi, and **D. W. Prather**, "Calculation of the dispersion diagrams of LHM using the 3D FDTD method," *Microwave and Optical Technology Letters*, Vol. 45, pp. 394-397, (2005).
- 26) B. L. Miao, C. H. Chen, S. Y. Shi, and **D. W. Prather**, "A high-efficiency in-plane splitting coupler for planar photonic crystal self-collimation devices," *IEEE Photonics Technology Letters*, Vol. 17, pp. 61-63, (2005).
- 27) Z. L. Lu, S. Y. Shi, C. A. Schuetz, and **D. W. Prather**, "Experimental demonstration of negative refraction imaging in both amplitude and phase," *Optics Express*, Vol. 13, pp. 2007-2012, (2005).
- 28) Z. L. Lu, C. A. Schuetz, S. Y. Shi, C. H. Chen, G. P. Behrmann, and **D. W. Prather**, "Experimental demonstration of self-collimation in low-index-contrast photonic crystals in the millimeter-wave regime," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 53, pp. 1362-1368, (2005).
- 29) C. C. Lin, C. H. Chen, A. Sharkawy, G. J. Schneider, S. Venkataraman, and **D. W. Prather**, "Efficient terahertz coupling lens based on planar photonic crystals on silicon on insulator," *Optics Letters*, Vol. 30, pp. 1330-1332, (2005).
- 30) A. Rosenberg, M. W. Carter, J. A. Casey, M. Kim, R. T. Holm, R. L. Henry, C. R. Eddy, V. A. Shamamian, K. Bussmann, S. Shi, Shouyuan, **D. W. Prather** "Guided resonances in asymmetrical GaN photonic crystal slabs observed in the visible spectrum" *Optics Express*, v 13, n 17, pp. 6564-6571, August (2005).
- 31) X. Gao, M. S. Mirotznik, and **D. W. Prather**, "Electromagnetic simulations of metallic materials using the mapped Fourier PSTD algorithm," *Microwave and Optical Technology Letters*, Vol. 44, pp. 569-575, (2005).

- 32) X. Gao, M. S. Mirotznik, S. Y. Shi, and **D. W. Prather**, "3D simulations of electrically large thin plates using the hybrid PSTD-FDTD algorithm," *Microwave and Optical Technology Letters*, Vol. 45, pp. 502-507, (2005).
- 33) P. Yao, G. J. Schneider, B. L. Miao, J. Murakowski, **D. W. Prather**, E. D. Wetzel, and D. J. O'Brien, "Multilayer three-dimensional photolithography with traditional planar method," *Applied Physics Letters*, Vol. 85, pp. 3920-3922, (2004).
- 34) S. Venkataraman, G. J. Schneider, J. Murakowski, S. Y. Shi, and **D. W. Prather**, "Fabrication of three-dimensional photonic crystals using silicon micromachining," *Applied Physics Letters*, Vol. 85, pp. 2125-2127, (2004).
- 35) Thomas Dillon, Anita Balcha, Janusz Murakowski, and **D. W. Prather**, "Continuous-Tone Grayscale Mask Fabrication using High-Energy-Beam-Sensitive (HEBS) Glass," *Journal of Microlithography, Microfabrication, and Microsystems*, October (2004).
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- 37) D. M. Pustai, S. Y. Shi, C. H. Chen, A. Sharkawy, and **D. W. Prather**, "Analysis of splitters for self-collimated beams in planar photonic crystals," *Optics Express*, Vol. 12, pp. 1823-1831, (2004).
- 38) M. S. Mirotznik, D. M. Pustai, **D. W. Prather**, and J. N. Mait, "Design of two-dimensional polarization-selective diffractive optical elements with form-birefringent microstructures," *Applied Optics*, Vol. 43, pp. 5947-5954, (2004).
- 39) B. L. Miao, C. H. Chen, S. Y. Shi, J. Murakowski, and **D. W. Prather**, "High-efficiency broad-band transmission through a double-60 degrees bend in a planar photonic crystal single-line defect waveguide," *IEEE Photonics Technology Letters*, Vol. 16, pp. 2469-2471, (2004).
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- 41) S. K. Lohokare, O. V. Sulima, V. A. Solov'ev, S. V. Ivanov, and **D. W. Prather**, "High-performance, 1.55  $\mu\text{m}$  AlGaAsSb/AlGaSb pin photodetectors," *Electronics Letters*, Vol. 40, pp. 1377-1378, (2004).
- 42) S. K. Lohokare, C. A. Schuetz, Z. L. Lu, T. Dillon, A. Sure, and **D. W. Prather**, "10-Gbytes/s, three-dimensional parallel optical interconnects using a novel conductive polymer flip-chip process," *Optical Engineering*, Vol. 43, pp. 2511-2517, (2004).
- 43) C. C. Lin, C. H. Chen, G. J. Schneider, P. Yao, S. Y. Shi, A. Sharkawy, and **D. W. Prather**, "Wavelength scale terahertz two-dimensional photonic crystal waveguides," *Optics Express*, Vol. 12, pp. 5723-5728, (2004).
- 44) X. Gao, M. S. Mirotznik, S. Y. Shi, and **D. W. Prather**, "Applying a mapped pseudospectral time-domain method in simulating diffractive optical elements," *Journal of the Optical Society of America a-Optics Image Science and Vision*, Vol. 21, pp. 777-785, (2004).
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- 53) C. Chen, S. Shi, **D.W. Prather**, "Electromagnetic Design of an All-Diffractive Millimeter Wave Imaging System", *Applied Optics*, 43 (12), 2431-2438, (2004).
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- 55) S. K. Lohokare, **D.W. Prather**, J. A. Cox, P. E. Sims, M. G. Mauk and O. V. Sulima, "Integrated Rx and Tx Multi-chip modules for 3-D chip-level optical interconnects," *Optical Engineering*, 42 (9), 2683-2688, (2003).
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- 57) C. Chen, A. Sharkawy, D.M. Pustai, S. Shi, and **D. W. Prather**, "Optimizing Bending Efficiency of Self-Collimated Beams in Non-channel Planar PhC Waveguides," *Optics Express*, 11 (23), 3152-3159, (2003).
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- 63) Ge Jin, S. Shi, A. Sharkawy and **D.W. Prather**, "Polarization Effects in Tapered Dielectric Waveguides," *Optics Express*, 11 (16), 1931-1941, (2003).
- 64) K. Hennessy, C. Resse, A. Badolato, C. F. Wang, Ge Jin, S. Shi, **D.W. Prather**, A. Imamoglu, P. M. Petroff and E. Hu, "Square-lattice Photonic Crystals Microcavities for Coupling to Single InAs Quantum dots," *Applied Physics Letters*, 83 (18), 3650-3652, (2003).

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- 80) **D.W. Prather**, D. Pustai, and S. Shi, “Performance of multilevel diffractive lenses as a function of  $f$ /number,” *Applied Optics*, 40 (2), 207-210, (2001).
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- 1) **D. W. Prather**, Z. Lu, S. Shi, J. A. Murakowski, P. Yao, and G. J. Schneider, "Simulation, Fabrication, and Application of Three-Dimensional Dispersion-Engineered Photonic Crystals," Materials Research Society Annual Meeting, San Francisco, CA July (2007).
- 2) **D. W. Prather**, J. P. Durbano, E. J. Kelmelis, "Novel Hardware Platforms for Shipboard Modeling of Electromagnetic Phenomena," Advanced Computational Electromagnetics Symposium, Verona, Italy, March (2007).
- 3) **D. W. Prather**, Z. Lu, J. A. Murakowski, S. Shi, G. J. Schneider, C. A. Schuetz, P. Yao, and B. Citla "Design, fabrication, and application of three dimensional dispersion engineered photonic crystal devices," *Integrated Photonics Research and Applications and the Nanophotonics Topical Meetings (IPRA/NANO)*, Washington, DC, April (2006).
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