Uday K. Chettiar

1220 Sansom St N1, Philadelphia, Pennsylvania 19107, USA
Tel: 1 765 409 2366; Email: udaykc@gmail.com
http://www.linkedin.com/in/udaychettiar/;http://www.udaychettiar.com

PUBLICATIONS AND PRESENTATIONS (reverse chronological order)

Journal Papers

[35] Uday K. Chettiar and N. Engheta, "Metatronic Transistor and Amplifier," under preparation.
[34] Uday K. Chettiar and N. Engheta, "Optical Bistable Element Using Phase Transition Materials," under preparation.
[33] Uday K. Chettiar and N. Engheta, "Optical bistability in nanoantennas with Kerr nonlinearity," under preparation.
[32] Uday K. Chettiar and N. Engheta, "Meta-Atom with second-harmonic-only scattering and invisible at first harmonic: Mixing plasmonic cloaking with 2nd order optical nonlinearity," under review.
[31] Uday K. Chettiar, A. R. Davoyan, and N. Engheta, "Hotspots from nonreciprocal surface waves," Optics Letters, vol. 39, pp. 1760, 2014.
[30] M. Saboktakin, X. C. Ye, Uday K. Chettiar, N. Engheta, C. B. Murray, and C. R. Kagan, "Plasmonic enhancement of nanophosphor unconversion luminescence in Au nanohole arrays," ACS Nano, vol. 7, pp. 7186, 2013.
[29] C. T. Derose, R. D. Kekatpure, D. C. Trotter, A. Starbuck, J. R. Wendt, A. Yaacobi, M. R. Watts, Uday K. Chettiar, N. Engheta, and P. S. Davids, "Electronically controlled optical beam-steering by an active phased array of metallic nanoantennas," Optics Express, vol. 21, pp. 5198, 2013.
[28] M. Saboktakin, X. C. Ye, S. J. Oh, S. H. Hong, A. T. Fafarman, Uday K. Chettiar, N. Engheta, C. B. Murray, and C. R. Kagan, "Metal-enhanced upconversion luminescence tunable through metal nanoparticle-nanophosphor separation," ACS Nano, vol. 6, pp. 8758, 2012.
[27] Uday K. Chettiar and N. Engheta, "Internal homogenization: Effective permittivity of a coated sphere," Optics Express, vol. 20, pp. 22976, 2012.
[26] Uday K. Chettiar and N. Engheta, "Optical frequency mixing through nanoantenna enhanced difference frequency generation: Metatronic mixer," Physical Review B, vol. 86, pp. 075405, 2012.
[25] Uday K. Chettiar, R. F. Garcia, S. A. Maier, and N. Engheta, "Enhancement of radiation from dielectric waveguides using resonant plasmonic coreshells," Optics Express, vol. 20, pp. 16104, 2012.
[24] P. Fan, Uday K. Chettiar, L. Cao, F. Afshinmanesh, N. Engheta, and M. L. Brongersma, "An invisible metal-semiconductor photodetector," Nature Photonics, vol. 6, pp. 380, 2012.
[23] O. Luukkonen, Uday K. Chettiar, and N. Engheta, "One-way waveguides connected to one-way loads," IEEE Antennas and Wireless Propagation Letters, vol. 11, pp. 1398, 2012.
[22] M. D. Thoreson, J. Fang, A. V. Kildishev, L. J. Prokopeva, P. Nyga, Uday K. Chettiar, V. M. Shalaev, and V. P. Drachev, "Fabrication and realistic modeling of three-dimensional metal-dielectric composites," Journal of Nanophotonics, vol. 5, pp. 051513, 2011.
[21] S. Xiao, V. P. Drachev, A. V. Kildishev, X. Ni, Uday K. Chettiar, H. K. Yuan, and V. M. Shalaev, "Loss-free and active optical negative-index metamaterials," Nature, vol. 466, 2010.
[20] Uday K. Chettiar, P. Nyga, M. D. Thoreson, A. V. Kildishev, V. P. Drachev, and V. M. Shalaev, "FDTD modeling of realistic semicontinuous metal films," Applied Physics B, vol. 100, 2010.
[19] Y. Sivan, S. Xiao, Uday K. Chettiar, A. V. Kildishev, and V. M. Shalaev, "Frequency-domain simulations of a negative-index material with embedded gain," Optics Express, vol. 17, 2009.
[18] S. Xiao, Uday K. Chettiar, A. V. Kildishev, V. P. Drachev, and V. M. Shalaev, "Yellow-light negative-index metamaterials," Optics Letters, vol. 34, 2009.
[17] S. Xiao, Uday K. Chettiar, A. V. Kildishev, V. P. Drachev, I. C. Khoo, and V. M. Shalaev, "Tunable magnetic response of metamaterials," Applied Physics Letters, vol. 95, 2009
[16] A. V. Kildishev, Uday K. Chettiar, Z. Jacob, V. M. Shalaev, and E. E. Narimanov "Materializing a binary hyperlens design," Applied Physics Letters, vol. 94, 2009
[15] A. V. Kildishev, W. Cai, Uday K. Chettiar, and V. M. Shalaev, "Transformation optics: approaching broadband electromagnetic cloaking," New Journal of Physics, vol. 10, 2008.
[14] Uday K. Chettiar, S. Xiao, A. V. Kildishev, W. Cai, H. K. Yuan, V. P. Drachev, and V. M. Shalaev, "Optical metamagnetism and negative index metamaterials," *Materials Research Society Bulletin*, vol. 33, 2008 (**Invited**).
[13] W. Cai, Uday K. Chettiar, A. V. Kildishev, and V. M. Shalaev, "Designs for optical cloaking with high-order transformations," *Optics Express*, vol. 16, 2008.
[12] V. P. Drachev, Uday K. Chettiar, A. V. Kildishev, H. K. Yuan, W. Cai, and V. M. Shalaev, "The Ag dielectric function in plasmonic metamaterials," *Optics Express*, vol. 16, 2008.
[11] A. V. Kildishev, Uday K. Chettiar, Z. Liu, V. M. Shalaev, D. H. Kwon, Z. Bayraktar, and D. H. Werner, "Stochastic optimization of low-loss optical negative-index metamaterial," *Journal of the Optical Society of America B*, vol. 24, 2007.
[10] W. Cai, Uday K. Chettiar, A. V. Kildishev, V. M. Shalaev, and G. W. Milton, "Nonmagnetic cloak with minimized scattering," *Applied Physics Letters*, vol. 91, 2007.
[9] Uday K. Chettiar, A. V. Kildishev, H. K. Yuan, W. Cai, S. Xiao, V. P. Drachev, and V. M. Shalaev, "Dual-band negative index metamaterial: double negative at 813nm and single negative at 772nm," *Optics Letters*, vol. 32, 2007.

[8] W. Cai, Uday K. Chettiar, A. V. Kildishev, and V. M. Shalaev, "Optical cloaking with metamaterials," *Nature Photonics*, vol. 1, 2007. **Cited over 707 times as of Dec 2013 (Web of Science)**

[7] W. Cai, Uday K. Chettiar, H. K. Yuan, V. C. de Silva, A. V. Kildishev, V. P. Drachev, and V. M. Shalaev, "Metamagnetics with rainbow colors," *Optics Express*, vol. 15, 2007.

[6] A. V. Kildishev and Uday K. Chettiar, "Cascading optical negative index metamaterials," *Applied Computations Electromagnetics Society Journal*, vol. 22, 2007.

[5] H. K. Yuan, Uday K. Chettiar, W. Cai, A. V. Kildishev, A. Boltasseva, V. P. Drachev, and V. M. Shalaev, "A negative permeability material at red light," *Optics Express*, vol. 15, 2007.

[4] Uday K. Chettiar, A. V. Kildishev, T. A. Klar, and V. M. Shalaev, "Negative index metamaterial combining magnetic resonators with metal films," *Optics Express*, vol. 14, 2006.

[3] A. V. Kildishev, W. Cai, Uday K. Chettiar, H. K. Yuan, A. K. Sarychev, V. P. Drachev, and V. M. Shalaev, "Negative refractive index in optics of metal-dielectric composites," *Journal of the Optical Society of America B*, vol. 23, 2006.

[2] V. P. Drachev, W. Cai, Uday Chettiar, H. K. Yuan, A. K. Sarychev, A. V. Kildishev, G. Klimeck, and V. M. Shalaev, "Experimental verification of an optical negative-index material," *Laser Physics Letters*, vol. 3, 2006.

[1] V. M. Shalaev, W. Cai, Uday K. Chettiar, H. K. Yuan, A. K. Sarychev, V. P. Drachev, and A. V. Kildishev, "Negative index of refraction in optical metamaterials," *Optics Letters*, vol. 30, 2005. **Cited over 882 times as of Dec 2013 (Web of Science)**

Selected Conference Presentations (as presenter or first author)

[13] Uday K. Chettiar and N. Engheta, "Optical Bistable Element Using Phase Transition Materials," Metamaterials, Bordeaux, France, September 16-21, 2013.

[12] Uday K. Chettiar and N. Engheta, "Optically Controlled Tunable Metatronic Elements," Gordon Research Conference: Plasmonics, Waterville, ME, June 10-15, 2012.

[11] Uday K. Chettiar and N. Engheta, "Internal Homogenization: Effective Permittivity of Coated Spheres," Optical Society of America (OSA) Frontiers in Optics, San Jose, CA, October 16-20, 2011.

[10] Uday K. Chettiar and N. Engheta, "Pairs of optical nanoantennas for enhancing second-harmonic generation," Optical Society of America (OSA) Frontiers in Optics, Rochester, NY, October 24-28, 2010.

[9] Uday K. Chettiar and N. Engheta, "Mixing Plasmonic Cloaking with Second-Order Optical Nonlinearity," Optical Society of America (OSA) Frontiers in Optics, San Jose, CA, October 11-15, 2009.

[8] Uday K. Chettiar, M. D. Thoreson, P. L. Koswatta, A. V. Kildishev, and V. M. Shalaev, " Modeling and fabrication of random composite superlens prototypes," SPIE Optics+Photonics, San Diego, CA, August 2-6, 2009.

[7] A. V. Kildishev, Uday K. Chettiar, V. P. Drachev, and V. M. Shalaev, "Numerical simulations of nanostructured optical metamaterials: challenges and trends," SPIE Optics+Photonics, San Diego, CA, August 10-14, 2008 (**Invited**).

[6] Uday K. Chettiar, A. V. Kildishev, H. K. Yuan, W. Cai, S. Xiao, V. P. Drachev, and V. M. Shalaev, "Optical double negative metamaterial at 813 nm," Optical Society of America (OSA) Frontiers in Optics, San Jose, CA, September 16-20, 2007.

[5] Uday K. Chettiar, A. V. Kildishev, H. K. Yuan, W. Cai, S. Xiao, V. P. Drachev, and V. M. Shalaev, "Double negative index metamaterial: simultaneous negative permeability and permittivity at 813 nm," OSA Topical Meeting on Photonic Metamaterials, Jackson Hole, WY, June 4-7, 2007.

[4] Uday K. Chettiar, A. V. Kildishev, H. K. Yuan, W. Cai, V. P. Drachev, and V. M. Shalaev, "Negative metamaterial for two distinct polarizations: double negative at 813 nm and single negative at 770 nm," Conference on Lasers and Electro-optics (CLEO/QELS), Baltimore, MD, May 6-11, 2007.

[3] Uday K. Chettiar, A. V. Kildishev, and V. M. Shalaev, "Angular dependence in optical negative index materials," IEEE AP-S International Symposium, Albuquerque, NM, July 9-14, 2006 (**Invited**).

[2] Uday K. Chettiar, A. V. Kildishev, T. A. Klar, H. K. Yuan, W. Cai, A. K. Sarychev, V. P. Drachev, and V. M. Shalaev, "From low-loss to lossless optical negative-index materials," Conference on Lasers and Electro-optics (CLEO/QELS), Long Beach, CA, May 21-26, 2006.

[1] Uday K. Chettiar, A. V. Kildishev, H. K. Yuan, W. Cai, A. K. Sarychev, V. P. Drachev, and V. M. Shalaev, "Simulation of optical negative index materials," Optical Society of America (OSA) Frontiers in Optics, Tucson, AZ, October 17-20, 2005.

REFERENCES

Available upon request