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## *EDUCATION*

1. *B.S. in Physics,* Seoul National University, Seoul, Korea (February 1989)
2. *M.S. in Physics,* Dongguk University, Seoul, Korea (August 1991)
3. *Ph.D. in Physics,* Georgia Institute of Technology, Atlanta, GA (June 1997)

## *PROFESSIONAL EXPERIENCE*

1. *Graduate Teaching Assistant*, Georgia Institute of Technology (1993 - 1994)
2. *Graduate Research Assistant*, Georgia Institute of Technology (1994 - 1997)
3. *Post-doctoral Fellow*, Georgia Tech Research Institute (1997 - 1998)
4. *Research Scientist II*, Georgia Tech Research Institute (1998 - 2001)
5. *Associate Member*, University of Colorado Cancer Center (2005 - 2006)
6. *Assistant Professor*, Department of Electrical & Computer Engineering, University of Colorado at Boulder (2001 - 2008)
7. *Full Member*, University of Colorado Cancer Center (2006 - Present)
8. *Visiting Professor*, University of Lille, Lille, France (2008)
9. *Associate Professor*, Department of Electrical, Computer & Energy Engineering, University of Colorado at Boulder (2008 - 2015)
10. *Fellow*, Materials Science & Engineering Program, University of Colorado at Boulder (2012 - Present)
11. *Visiting Professor*, Department of Biophysics and Chemical Biology, Seoul National University, South Korea (2015)
12. *Full Professor*, Department of Electrical, Computer & Energy Engineering, University of Colorado at Boulder (2015 - Present)

## *HONORS AND AWARDS*

1. Ruth L. Kirschstein NRSA Senior Fellow in Cancer Nanotechnology Research (2008)
2. Visiting Professor, Centre National de la Recherche Scientifique (CNRS), Université de Lille, France (2008)
3. Dean's Faculty Fellow (2011)
4. Provost's Faculty Achievement Award (2012)
5. Visiting Professor, Department of Biophysics and Chemical Biology, Seoul National University, South Korea (2015)
6. N. Rex Sheppard Faculty Fellow (2015)
7. Highly Contributed Paper Award by *Nano Convergence* (2015)
8. Changbai Scholar Award (2017)
9. Best Paper Award, Symposium on Luminescent Materials for Photon Upconversion, 2017 Materials Research Society Spring Meeting (2017)
10. 2019 Cooper Lecturer, West Virginia University (2019)

***PUBLICATIONS***[†]

***Book Chapters***

1. W. Park, "Modeling of photonic crystals", in *Handbook of Theoretical and Computational Nanotechnology Vol. 7*, ed. by M. Rieth and W. Schommers (American Scientific Publishers, Stevenson Ranch, CA, 2006), pp. 263-327.
2. W. Park, "Negative Refractive Index", in *Encyclopedia of Materials: Science and Technology*, ed. by K. H. Jurgen Buschow, Robert W. Cahn, Merton C. Flemings, Bernard Ilschner (print), Edward J. Kramer, Subhash Mahajan, and Patrick Veyssiere (updates) (Elsevier, Oxford, UK, 2010), pp. 1-6.
3. J. H. Lee, J. Xue, W. Park, and A. Mickelson, "Surface Plasmon Polariton Waveguides In Nonlinear Optical Polymer" in *Organic Thin Films for Photonics Applications*, ed. by W. Herman, S. R. Flom and S. H. Foulger (American Chemical Society, 2010), pp. 67-83.

***Peer-Reviewed Journal***[‡]

1. T. K. Tran, W. Park, J. W. Tomm, B. K. Wagner, S. M. Jacobsen, C. J. Summers, P. N. Yocom, and S. K. McClelland, "Photoluminescence Properties of $ZnGa_2O_4$:Mn Phosphor Powders", *J. Appl. Phys.* **78**, 5691-5695 (1995) - Conducted photoluminescence spectroscopy and provided key theoretical modeling and analysis.
2. T. Yang, B. K. Wagner, M. Chaichimansour, W. Park, Z. L. Wang, and C. J. Summers, "Molecular Beam Epitaxy Growth of Strontium Thiogallate", *J. Vac. Sci. & Technol. B* **14**, 2263-2266 (1996) - Conducted photoluminescence spectroscopy.
3. W. Tong, B. K. Wagner, T. K. Tran, W. Ogle, W. Park, and C. J. Summers, "Kinetics of Chemical Beam Epitaxy for High Quality ZnS Film Growth", *J. Cryst. Growth* **164**, 202-207 (1996) - Conducted photoluminescence spectroscopy.
4. C. J. Summers, W. Tong, T. K. Tran, W. Ogle, W. Park, and B. K. Wagner, "Photoluminescence Properties of ZnS Epilayers Grown by Metalorganic Molecular Beam Epitaxy", *J. Cryst. Growth* **159**, 64-67 (1996) - Conducted photoluminescence spectroscopy.
5. W. Tong, T. K. Tran, W. Park, B. K. Wagner, and C. J. Summers, "High-Quality ZnS Thin Film Growth for Flat Panel Display", *J. SID* **4**, 325-329 (1996) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
6. T. Yang, M. Chaichimansour, W. Park, B. K. Wagner, and C. J. Summers, "MBE Growth and Characterization of $SrGa_2S_4$:Ce Blue Phosphor for Thin Film Electroluminescence", *J. SID* **4**, 311-313 (1996) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
7. T. K. Tran, W. Park, W. Tong, M. M. Kyi, B. K. Wagner, and C. J. Summers, "Photoluminescence Properties of ZnS Epilayers", *J. Appl. Phys.* **81**, 2803-2809 (1997) - Conducted photoluminescence spectroscopy and provided key theoretical modeling analysis.

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[†] For articles with multiple authors, the general rule on the order of the authors is as follows. First author made a major contribution, led and coordinated the collaboration and put together the manuscript. Second and third authors made major contributions, played significant roles in the collaboration and wrote portions of the manuscript. Others made substantial but partial contributions and played minor roles in the collaborations. An important exception is the advisor whose students are the leading authors, in which case the advisor also made a major contribution.

[‡] My contribution is briefly described for each article. Authors for whom I was the principal advisor are underlined.
Article 35 and later are published after I moved to the University of Colorado.

8. W. Tong, L. Zhang, W. Park, M. Chaichimansour, B. K. Wagner, and C. J. Summers, "Charge Compensation Study of Molecular Beam Epitaxy Grown SrS:Ce", *Appl. Phys. Lett*. **71**, 2268-2270 (1997) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
9. S. Schön, M. Chaichimansour, W. Park, T. Yang, B. K. Wagner, and C. J. Summers, "Homogeneous and δ-doped ZnS:Mn Grown by MBE", *J. Cryst. Growth* **175**/**176**, 598-602 (1997) - Conducted photoluminescence spectroscopy measurements and provided theoretical analysis.
10. W. Tong, T. Yang, W. Park, M. Chaichimansour, B. K. Wagner, and C. J. Summers, "Gas Source MBE Growth of SrS:Ce for Flat Panel Display", *J. Electron. Mater.* **26**, 728-731 (1997) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
11. W. Park, T. C. Jones, W. Tong, S. Schön, M. Chaichimansour, B. K. Wagner, and C. J. Summers, "Luminescence Decay Kinetics in Homogeneously- and Delta-Doped ZnS:Mn", *J. Appl. Phys.* **84**, 6852-6858 (1998) - Conducted extensive photoluminescence spectroscopy and extensive theoretical modeling and analysis.
12. W. Park, T. C. Jones, W. Tong, S. Schön, M. Chaichimansour, B. K. Wagner, and C. J. Summers, "Energy Transfer Processes and Photoluminescence Properties of Homogeneously- and Delta-Doped ZnS:Mn", *J. Cryst. Growth* **184/185**, 1123-1127 (1998) - Conducted extensive photoluminescence spectroscopy and extensive theoretical modeling and analysis.
13. P. D. Rack, M. D. Potter, S. Kurinec, W. Park, J. Penczek, B. K. Wagner, and C. J. Summers, "Luminescence Properties of Thin Film $Ta_2Zn_3O_8$ and $Mn^{2+}$ doped $Ta_2Zn_3O_8$", *J. Appl. Phys.* **84**, 4466-4470 (1998) - Conducted photoluminescence spectroscopy.
14. P. D. Rack, J. S. Lewis, P. H. Holloway, W. Park, B. K. Wagner, C. J. Summers, "Bound Exciton Luminescence in Te-Doped SrS", *J. Appl. Phys*. **84**, 3676-3683 (1998) - Conducted photoluminescence spectroscopy.
15. W. Tong, T. Yang, M. Chaichimansour, W. Park, B. K. Wagner, C. J. Summers, S.-S. Sun, and C. N. King, "Electroluminescent SrS:Ce Thin Films Grown by Gas-Source MBE", *J. SID* **6**, 29-33 (1998) - Conducted photoluminescence spectroscopy.
16. S. Schön, M. Chaichimansour, W. Park, T. Yang, B. K. Wagner, and C. J. Summers, "Improved Photoluminescence Properties of ZnS:Mn due to the δ-doping Process", *J. SID* **6**, 67-71 (1998) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
17. W. Park, T. C. Jones, B. K. Wagner and C. J. Summers, "Multilayer Stacked Electroluminescent Devices", *Appl. Phys. Lett.* **74**, 2860-2862 (1999) - Invented new device concept and conducted device modeling.
18. W. Park, T. C. Jones and C. J. Summers, "Optical Properties of SrS:Cu,Ag Two-Component Phosphors for Electroluminescent Devices", *Appl. Phys. Lett.* **74**, 1785-1787 (1999) - Conducted extensive photoluminescence spectroscopy and provided theoretical analysis.
19. T. C. Jones, W. Park, and C. J. Summers, "A Two-Component Phosphor Approach for Engineering Electroluminescent Phosphors", *Appl. Phys. Lett*. **75**, 2398-2400 (1999) - Conducted extensive photoluminescence spectroscopy and provided theoretical analysis.
20. Y. B. Xin, W. Tong, W. Park, M. Chaichimansour, and C. J. Summers, "Annealing Studies of Molecular Beam Epitaxial Grown SrS:Cu Blue Phosphors", *J. Appl. Phys.* **85**, 3999-4002 (1999) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
21. W. Tong, Y. B. Xin, W. Park, and C. J. Summers, "*In Situ* Annealing Studies of Molecular Beam Epitaxial Growth of SrS:Cu", *Appl. Phys. Lett.* **74**, 1379-1381 (1999) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
22. B. Shen, Y. G. Zhou, Z. Z. Chen, P. Chen, R. Zhang, Y. Shi, Y. D. Zheng, W. Tong, and W. Park, "Growth of Wurtzite GaN Films on α-$Al_2O_3$ Substrates Using Light-Radiation Heating Metal-Organic Chemical Vapor Deposition", *Appl. Phys. A* **68**, 593-596 (1999) - Conducted photoluminescence spectroscopy.

23. W. Park, B. K. Wagner, G. Russell, K. Yasuda, C. J. Summers, Y. R. Do and H. G. Yang, "Thin $SiO_2$ Coating on ZnS Phosphors for Improved Low Voltage Cathodoluminescence Properties", *J. Mater. Res.* **15**, 2288-2291 (2000) - Made materials, conducted cathodoluminescence spectroscopy and provided theoretical analysis.
24. W. Park, R.-Y. Lee, C. J. Summers, Y. R. Do and H. G. Yang, "Photoluminescence Properties of $Al_3GdB_4O_{12}$:Eu Phosphors", *Mater. Sci. Eng. B* **78**, 28-31 (2000) - Made materials, conducted photoluminescence spectroscopy and provided theoretical analysis.
25. W. Park, K. Yasuda, B. K. Wagner, C. J. Summers, Y. R. Do and H. G. Yang, "Uniform and Continuous $Y_2O_3$ Coating on ZnS Phosphors", *Mater. Sci. Eng. B* **76**, 122-126 (2000) - Made materials and conducted cathodoluminescence spectroscopy.
26. W. Park, T. C. Jones, and C. J. Summers, "A Spectroscopic Study on SrS:Cu,Ag Two-Component Electroluminescent Phosphors", *J. Lumin.* **87-89**, 1267-1270 (2000) - Conducted extensive photoluminescence spectroscopy and provided theoretical analysis.
27. W. Park, T. C. Jones, W. Tong, B. K. Wagner, C. J. Summers, and S.-S. Sun, "Luminescent Properties of a New Blue EL Phosphor, SrS:Cu", *J. SID*. **Suppl.-1**, 47 (2000) - Conducted extensive photoluminescence spectroscopy and provided theoretical analysis.
28. C. J. Summers, B. K. Wagner, W. Tong, W. Park, Y. B. Xin and M. Chaichimansour, "Recent Progress in the Development of Full Color SrS-Based Electroluminescent Phosphors", *J. Cryst. Growth* **214**/**215**, 918-925 (2000) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
29. S. W. Lu, B. I. Lee, Z. I. Wang, W. Tong, B. K. Wagner, W. Park and C. J. Summers, "Synthesis and Photoluminescence Enhancement of $Mn^{2+}$-doped ZnS Nanocrystals", *J. Lumin.* **92**, 73-78 (2000) - Conducted photoluminescence spectroscopy.
30. W. Tong, M. Chaichimansour, W. Park, B. K. Wagner, C. J. Summers, S.-S. Sun, C. N. King, W. L. Warren, "Molecular Beam Epitaxy Growth of SrS Blue Electroluminescent Phosphors", *J. SID*. **Suppl.-1**, 69 (2000) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
31. Y. B. Xin, W. Tong, Z. L. Wang, W. Park and C. J. Summers, "Oxidation and Diffusion of Cu in SrS:Cu Grown by MBE for Blue Phosphors", *Displays* **21**, 89-92 (2000) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
32. W. Tong, Y. B. Xin, T. C. Jones, W. Park and C. J. Summers, "Codoping Studies of Molecular Beam Epitaxial Growth of SrS:Cu", *Displays* **21**, 83-87 (2000) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
33. P. D. Rack, J. J. Peterson, M. D. Potter and W. Park, "$Eu^{+3}$ and $Cr^{+3}$ Doping for Red Cathodoluminescence in $ZnGa_2O_4$", *J. Mater. Res.* **16**, 1429-1433 (2001) - Conducted photoluminescence spectroscopy.
34. S. W. Lu, T. Copeland, B. I. Lee, W. Tong, B. K. Wagner, W. Park and F. Zhang, "Synthesis and Luminescence Properties of $Mn^{2+}$ doped $Zn_2SiO_4$ phosphors by a Hydrothermal Method", *J. Phys. Chem. Solids* **62**, 777-781 (2001) - Conducted photoluminescence spectroscopy.
35. Y. R. Do, D. H. Park, H. G. Yang, W. Park, B. K. Wagner, K. Yasuda and C. J. Summers, "Uniform Nano-Scale $SiO_2$ Encapsulation of ZnS Phosphors for Improved Aging Properties under Low Voltage Electron Beam Excitation", *J. Electrochem. Soc*. **148**, G548-551 (2001) - Made materials and provided theoretical analysis.
36. W. Park and C. J. Summers, "Extraordinary Refraction and Dispersion in 2D Photonic Crystal Slabs", *Opt. Lett.* **27**, 1387-1389 (2002) - Designed new nanostructure and conducted simulations.
37. W. Park, J. S. King, C. W. Neff, C. Liddell and C. J. Summers, "ZnS-Based Photonic Crystals", *Phys. Stat. Sol. (b)* **229**, 949-960 (2002) - Made materials, conducted simulations and optical characterizations.
38. W. Park, C. J. Summers, Y. R. Do and H. G. Yang, "Photoluminescence Properties of the Red Emitting $BaGdB_9O_{16}$:Eu Phosphor", *J. Mater. Sci.* **37**, 4041-4045 (2002) - Made materials, conducted photoluminescence spectroscopy and provided theoretical analysis.

39. C. J. Summers, C. W. Neff and W. Park, "Active photonic crystal nano-architectures", *J. Nonlinear Opt. Phys. Mater.* **12**, 587-597 (2003) - Designed new nanostructure and conducted simulations.
40. J. S. King, C. W. Neff, C. J. Summers, W. Park, S. Blomquist, E. Forsythe and D. Morton, "High-filling-fraction inverted ZnS opals fabricated by atomic layer deposition", *Appl. Phys. Lett.* **83**, 2566-2568 (2003) - Conducted simulations.
41. J. Ihanus, M. Ritala, M. Leskelä, E. Soininen, W. Park, A. E. Kaloyeros, W. Harris, K. W. Barth, A. W. Topol, T. Sajavaara, and J. Keinonen, "Blue and green emitting SrS:Cu electroluminescent devices deposited by the atomic layer deposition technique", *J. Appl. Phys.* **94**, 3862-3868 (2003) - Conducted photoluminescence spectroscopy and provided theoretical analysis.
42. W. Park and C. J. Summers, "Optical properties of superlattice photonic crystal waveguides", *Appl. Phys. Lett.* **84**, 2013-2015 (2004) - Designed new nanostructure and conducted simulations.
43. W. Park and J.-B. Lee, "Mechanically tunable photonic crystal structures", *Appl. Phys. Lett.,* **85**, 4845-4847 (2004): *featured on the cover page*. - Invented new device and conducted simulations.
44. E. Schonbrun, M. Tinker, W. Park and J.-B. Lee, "Negative Refraction in a Si-Polymer Photonic Crystal Membrane", *IEEE Photon. Technol. Lett.* **17**, 1196-1198 (2005) - Designed new nanostructure, conducted simulations and optical characterizations.
45. Q. Wu and W. Park, "Broadband sub-wavelength imaging by mechanically tunable photonic crystal", *J. Comput. Theor. Nanosci.* **2**, 202-206 (2005) - Designed new nanostructure and conducted simulations.
46. Q. Wu, E. Schonbrun and W. Park, "Tunable Superlensing by Mechanically Controlled Photonic Crystal", *J. Opt. Soc. Am. B* **23**, 479-484 (2006) - Designed new nanostructure and conducted simulations.
47. M. Tinker, E. Schonbrun, J-B. Lee, and W. Park, "Process integration and development of inverted photonic crystal arrays", *J. Vac. Sci. Technol. B* **24**, 705-709 (2006) - Designed new nanostructure, conducted simulations and optical characterizations.
48. W. Park and J. Owens, "Future Directions in the Treatment of Oral Cancer", *Otolar. Clinics North Am.* **39**, 381-396 (2006) - provided a review on biomedical applications of photonic nanostructures.
49. E. Schonbrun, T. Yamashita, W. Park and C. J. Summers, "Negative Index Imaging by an Index-Matched Photonic Crystal Slab", *Phys. Rev. B* **73**, 195117-1-6 (2006) - Designed new nanostructure, conducted simulations and optical characterizations.
50. Z. A. Sechrist, B. T. Schwartz, J. H. Lee, J. A. McCormick, R. Piestun, W. Park, and S. M. George, "Modification of Opal Photonic Crystals Using $Al_2O_3$ Atomic Layer Deposition", *Chem. Mater.* **18**, 3562-3570 (2006) - Made nanomaterials, conducted simulations and optical characterizations.
51. E. Schonbrun, Q. Wu, W. Park, T. Yamashita, and C. J. Summers, "Polarization Beam Splitter Based on a Photonic Crystal Heterostructure", *Opt. Lett.* **31**, 3104-3106 (2006) - Designed new nanostructure, conducted simulations and optical characterizations.
52. J. H. Lee, Q. Wu and W. Park, "Fabrication and Optical Characterizations of Gold Nanoshell Opal", *J. Mater. Res.* **21**, 3215-3221 (2006) - Made nanomaterials, conducted simulations and optical characterizations.
53. E. Schonbrun, Q. Wu, W. Park, M. Abashin, Y. Fainman, T. Yamashita and C. J. Summers, "Wavefront Evolution of Negatively Refracted Waves in Photonic Crystals", *Appl. Phys. Lett.* **90**, 041113-1-3 (2007) - Designed new nanostructure, conducted simulations and optical characterizations.
54. H.-J. Kim, S. Kim, H. Jeon, J. Ma, S. H. Choi, S. Lee, C. Ko, and W. Park, "Fluorescence amplification using colloidal photonic crystal platform in sensing dye-labeled deoxyribonucleic acids", *Sensors and Actuators B* **124**, 147-152 (2007) - Made nanomaterials, conducted optical characterizations.
55. E. Schonbrun, Q. Wu, W. Park, M. Abashin, Y. Fainman, J. Blair, and C. J. Summers, "Total Internal Reflection Photonic Crystal Prism", *Opt. Express* **15**, 8065-8075 (2007) - Designed new nanostructure, conducted simulations and optical characterizations.
56. Q. Wu, E. Schonbrun, and W. Park, "Image Inversion and Magnification by Negative Index Prisms", *J. Opt. Soc. Am. A* **24**, A45-A51 (2007) - Designed new nanostructure and conducted simulations.

57. E. Schonbrun, Q. Wu, W. Park, M. Abashin, Y. Fainman, T. Yamashita and C. J. Summers, "Imaging the Wavefront Curvature Reversal in Photonic Crystals", *Optics and Photonics News*, pp. 34, Dec. 2007, Featured in *Optics in 2007*, the annual highlights in optics research selected by the Optical Society of America.
58. W. Park and Q. Wu, "Negative Effective Permeability in Metal Cluster Photonic Crystal", *Solid State Commun.* **146**, 221 (2008) - Designed new nanostructure and conducted simulations.
59. Y. Cui, Q. Wu, E. Schonbrun, M. Tinker, J.-B. Lee, and W. Park, "Silicon-Based 2D Slab Nano Photonic Crystal TM Polarizer in Telecommunication Wavelength", *IEEE Photon. Technol. Lett.* **20**, 641 (2008) - Designed new nanostructure, conducted simulations and optical characterizations.
60. W. Park and Q. Wu, "Optical Frequency Magnetic Activity in Metal Nanocluster Photonic Crystal", *J. Comput. Theor. Nanosci*, **5**, 476 (2008)
61. Q. Wu and W. Park, "Negative index materials based on metal nanoclusters", *Appl. Phys. Lett.* **92**, 153114 (2008)
62. J. H. Lee and W. Park, "Three Dimensional Metallic Photonic Crystal Based on Self-Assembled Gold Nanoshells", *Func. Mater. Lett.* **1**, 65 (2008)
63. Q. Wu, J. M. Gibbons and W. Park, "Graded negative index lens by photonic crystals", *Opt. Express* **16**, 16941 (2008)
64. W. Park and J. Kim, "Negative Index Materials: Optics by Design", *MRS Bulletin* **33**, 907 (2008)
65. M. A. Weimer, A. W. Weimer, and W. Park, "Theory of conduction in ultrafast metal-insulator varistors", *J. Appl. Phys.* **104**, 114516 (2008)
66. J. H. Lee, Q. Wu, and W. Park, "Metal nanocluster metamaterial fabricated by the colloidal self-assembly", *Opt. Lett.* **34**, 443-445 (2009).
67. W. Park and J.-B. Lee, "Mechanically Tunable Photonic Crystals", *Optics and Photonics News*, Jan. 2009, p. 40.
68. J. H. Lee, J. Blair, V. A. Tamma, Q. Wu, S. J. Rhee, C. J. Summers and W. Park, "Direct visualization of optical frequency invisibility cloak based on silicon nanorod array", *Optics Express* **17**, 12922-12928 (2009)
69. R. Pratibha, K. Park, I. I. Smalyukh and W. Park, "Tunable optical metamaterial based on liquid crystal-gold nanosphere composite", *Optics Express* **17**, 19459-19469 (2009)
70. V. A. Tamma, J.-H. Lee, Q. Wu and W. Park, "Visible Frequency Magnetic Activity in Silver Nanocluster Metamaterial", *Appl. Opt.* **49**, A11–A17 (2010)
71. W. Park, "Controlling the flow of light with silicon nanostructures", *Laser Phys. Lett.* **7**, 93-103 (2010)
72. R. Pratibha, K. Park, W. Park and I. I. Smalyukh, "Colloidal gold nanoparticle dispersions in smectic liquid crystals and thin nanoparticle-decorated smectic films", *J. Appl. Phys.* **107**, 063511 (2010)
73. J. Blair, D. Brown, V. A. Tamma, W. Park, and C. J. Summers, "Challenges in the fabrication of an optical frequency ground plane cloak consisting of silicon nanorod arrays", *J. Vac. Sci. Technol. B.* **28**, 1222-1230 (2010)
74. V. A. Tamma, J. Blair, C. J. Summers and W. Park, "Dispersion characteristics of silicon nanorod based carpet cloaks", *Optics Express* **18**, 25746-25756 (2010)
75. Y. Cui, V. A. Tamma, J.-B. Lee and W. Park, "Mechanically Tunable Negative Index Lens Based on Silicon Nanorod Array", *IEEE Photonics Journal* **2**, 1003-1012 (2010)
76. X. Yu, C. J. Summers, and W. Park, "Controlling Energy Transfer Processes and Engineering Luminescence Efficiencies with Low Dimensional Doping", *J. Appl. Phys*. **111**, 073524 (2012)
77. Y. Cui, J. Zhou, V. A. Tamma, and W. Park, "Mechanical Tuning and Symmetry Lowering of Fano Resonance in Plasmonic Nanostructure", *ACS Nano* **6**, 2385-2393 (2012)
78. A. Agrawal, W. Park and R. Piestun, "Negative Permeability with Arrays of Aperiodic Silver Nanoclusters", *Appl. Phys. Lett.* **101**, 083109 (2012)
79. E. F. Dudley and W. Park, "Ultra-Compact High-Speed Electro-Optic Switch Utilizing Hybrid Metal-Silicon Waveguides", *J. Lightwave Technol.* **30**, 3401-3406 (2012)

80. W. Park, K. Emoto, Y. Jin, A. Shimizu, V. A. Tamma, and W. Zhang, "Cage Molecule Mediated Self-Assembly of Gold Nanoparticles for Optical Metamaterials", *Optical Materials Express* **3**, 205-215 (2013).
81. V. A. Tamma, Y. Cui and W. Park, "Scattering reduction at optical frequencies using plasmonic nanostructures", *Optics Express* **21**, 1041-1056 (2013)
82. V. A. Tamma, Y. Cui, J. Zhou and W. Park, "Nanorod orientation dependence of tunable Fano resonance in plasmonic nanorod heptamers", *Nanoscale* **5**, 1592-1602 (2013)
83. D. Lu, E. Rengnath, Y. Cui, Z. Wang, Y. Ding and W. Park, "Interaction of two plasmon modes in the organic photovoltaic devices with patterned back-electrode", *Appl. Phys. Lett.* **102**, 241114 (2013)
84. N. Azarova, A. J. Ferguson, J. van de Lagemaat, E. Rengnath, W. Park, J. C. Johnson, "Strong coupling between a molecular charge-transfer exciton and surface plasmons in a nanostructured metal grating", *J. Phys. Chem. Lett.* **4**, 2658-2663 (2013).
85. S. K. Cho, K. Emoto, L.-J. Su, X. Yang, T. W. Flaig and W. Park, "Functionalized gold nanorods for thermal ablation treatment of bladder cancer", *J. Biomed. Nanotechnol.* **10**, 1267-1276 (2014)
86. W. Park, "Optical Interactions in Plasmonic Nanostructures", *Nano Convergence* **1**, 2 (2014)
87. R. McCaffrey, H. Long, W. Park, and W. Zhang, "Template Synthesis of Gold Nanoparticles with an Organic Molecular Cage", *J. Am. Chem. Soc*. **136**, 1782-1785 (2014)
88. Z. Li, W. Park, G. Zorzetto, J. Lemaire, and C. J. Summers, "Synthesis Protocols for Delta-doped $NaYF_4$:Yb,Er", *Chem. Mater.* **26**, 1770-1778 (2014)
89. K. Choi, Y. Cui, V. A. Tamma, W. Park and J.-B. Park, "Air-Suspended Fast Transient Tunable Silicon Photonic Crystal Waveguide", *IEEE Photon. Technol. Lett.* **26**, 603-605 (2014)
90. J. Zhou, Y. Meng, H. Song, W. Han, D. Mu, X. Di, T. Liu and W. Park, "Transfer matrix method for direct and indirect coupling of cascaded cavities in resonator-waveguide systems", *Opt. Commun.* **329***,* 88-91 (2014)
91. D. Lu, S. K. Cho, S. Ahn, L. Brun, C. J. Summers and W. Park, "Plasmon enhancement mechanism of upconversion processes in $NaYF_4$:$Yb^{3+}$,$Er^{3+}$ nanoparticles: Maxwell versus Förster", *ACS Nano* **8**, 7780-7792 (2014).
92. J. Zhou, W. Han, Y. Meng, H. Song, D. Mu and W. Park, "Optical properties of direct and indirect coupling of cascaded cavities in resonator-waveguide systems", *J. Lightwave Technol.* **35**, 3502-3508 (2014).
93. D. Rourke, S. Ahn A. M. Nardes, J. van de Lagemaat, N. Kopidakis and W. Park, "Integrated optical and electrical modeling of plasmon-enhanced thin film photovoltaics: A case-study on organic devices", *J. Appl. Phys.* **116**, 114510 (2014).
94. M. R. Krogstad, S. Ahn, W. Park and J. T. Gopinath, "Nonlinear characterization of $Ge_{28}Sb_{12}Se_{60}$ bulk and waveguide devices", *Opt. Express*. **23**, 7870-7878 (2015).
95. W. Park, D. Lu and S. Ahn, "Plasmon Enhancement of Luminescence Upconversion", *Chem. Soc. Rev.* **44**, 2940-2962 (2015).
96. L. He, C. Mao, S. Cho, K. Ma, W. Xi, C. N. Bowman, W. Park and J. N. Cha, "Experimental and Theoretical Photoluminescence Studies in Nucleic Acid Assembled Gold-Upconverting Nanoparticle Clusters", *Nanoscale* **7**, 17254-17260 (2015).
97. K. Bae, G. Kang, S. K. Cho, W. Park, K. Kim and W. J. Padilla, "Flexible thin film black gold membranes with ultrabroadband plasmonic nanofocusing enabling efficient solar vapour generation", *Nat. Comm.* **6**, 10103 (2015).
98. S. Ahn, D. Rourke and W. Park, "Plasmonic nanostructures for organic photovoltaic devices", *J. Opt.* **18**, 033001 (2016).
99. D. Lu, C. Mao, S. K. Cho, S. Ahn and W. Park, "Experimental demonstration of plasmon enhanced energy transfer rate in $NaYF_4$:$Yb^{3+}$,$Er^{3+}$ upconversion nanoparticles", *Sci. Rep*. **6**, 18894 (2016).

100. L. He, J. Dragavon, S. Cho, C. Mao, A. Yildirim, K. Ma, R. Chattaraj, A. P. Goodwin, W. Park, J. N. Cha, "Self-Assembled Gold Nanostar-$NaYF_4$:Yb/Er Clusters for Multimodal Imaging, Photothermal and Photodynamic Therapy", *J. Mater. Chem. B* **4**, 4455-4461 (2016).
101. A. M. Nardes, S. Ahn, D. Rourke, A. J. Ferguson, J. van de Lagemaat, W. Park, N. Kopidakis, "Integrating nanostructured electrodes in organic photovoltaic devices for enhancing near-infrared photoresponse", *Org. Electron.* **39**, 59-63 (2016).
102. X. Ma, J. Huh, W. Park, L. Lee, Y. J. Kwon and S. J. Sim, "Gold nanocrystals with DNA-directed morphologies", *Nat. Comm.* **7,** 12873 (2016).
103. M. R. Krogstad, S. Ahn, W. Park and J. T. Gopinath, "Optical properties of single-mode Ge-Sb-Se waveguides at telecom wavelengths", *IEEE Photon. Technol. Lett.* **28**, 2720-2723 (2016).
104. L. He, M. Brasino, C. Mao, S. K. Cho, W. Park, A. P. Goodwin and J. N. Cha, "DNA-Assembled Core-Satellite Upconverting-Metal Organic Framework Nanoparticle Superstructures for Efficient Photodynamic Therapy", *Small* **13**, 1700504 (2017).
105. D. Lu, A. Das and W. Park, "Direct modeling of thermal emission from metamaterial surface", *Opt. Express* **25**, 12999-13009 (2017).
106. G. Kang, M. R. Krogstad, M. Grayson, D.-G. Kim, H. Lee, J. T. Gopinath, and W. Park, "High quality chalcogenide-silica hybrid wedge resonators', *Opt. Express* **25**, 15581-15589 (2017).
107. X. Yang, L.-J. Su, F. G. La Rosa, E. E. Smith, I. R. Schlaepfer, S. K. Cho, B. Kavanagh, W. Park and T. W. Flaig, "The Antineoplastic Activity of Photothermal Ablative Therapy with Targeted Gold Nanorods in an Orthotopic Urinary Bladder Cancer Model", *Bladder Cancer* **3**, 201-210 (2017).
108. L. Qiu, R. McCaffrey, Y. Jin, Y. Gong, Y. Hu, H. Sun, W. Park and W. Zhang, "Cage-templated synthesis of highly stable palladium nanoparticles and their catalytic activities in Suzuki–Miyaura coupling", *Chem. Sci.* **9**, 676-680, (2018).
109. D. Shin, G. Kang, P. Gupta, S. Behera, H. Lee, A. M. Urbas, W. Park, and K. Kim, "Thermoplasmonic and Photothermal Metamaterials for Solar Energy Applications", *Adv. Opt. Mater.* **6**, 1800317 (2018).
110. A. Das, C. Mao, S. Cho, K. Kim and W. Park, "Over 1000-fold enhancement of upconversion luminescence of $NaYF_4$:$Yb^{3+}$,$Er^{3+}$ nanocrystals using water-dispersible plasmonic metal-insulator-metal nanostructures", *Nat. Comm.* **9**, 4828 (2018).
111. L. He, C. Mao, M. Brasino, A. Harguindey, W. Park, A. Goodwin and J. Cha, "$TiO_2$ Capped Gold Nanorods for Plasmon-Enhanced Production of Reactive Oxygen Species and Photothermal Delivery of Chemotherapeutic Agents", *ACS Appl. Mater. Interf.* **10**, 27965–27971 (2018).
112. M. Brasino, S. Roy, A. Erbse, L. He, C. Mao, W. Park, J. Cha and A. Goodwin, "Anti-EGFR Affibodies with Site-Specific Photocrosslinker Incorporation Show Both Directed Target-Specific Photoconjugation and Increased Retention in Tumors", *J. Am. Chem. Soc.* **140**, 11820–11828 (2018).
113. C. Kim, S. Baek, Y. Ryu, Y. Kim, D. Shin, C.-W. Lee, W. Park, A. M. Urbas, G. Kang and K. Kim , "Large-scale nanoporous metal-coated silica aerogels for high SERS effect improvement", *Sci. Rep.* **8**, 15144 (2018).
114. Y. Ryu, C. Kim, J. Ahn, A. M. Urbas, W. Park, and K. Kim, "Material-Versatile Ultrabroadband Light Absorber with Self-Aggregated Multiscale Funnel Structures", *ACS Appl. Mater. Interfaces* **10**, 29884–29892 (2018).
115. S. K. Cho, L.-J. Su, C. Mao, C. D. Wolenski, T. W. Flaig and W Park, "Multifunctional nanoclusters of $NaYF_4$:$Yb^{3+}$,$Er^{3+}$ upconversion nanoparticle and gold nanorod for simultaneous imaging and targeted chemotherapy of bladder cancer", *Mater. Sci. Eng. C* **9**, 784-792 (2019).
116. Y. Kim, S. Baek, P. Gupta, C. Kim, K. Chang, S.-P. Ryu, H. Kang, W. S. Kim, J.-M. Myoung, W. Park, K. Kim, "Air-like plasmonics with ultralow-refractive-index silica aerogels", *Sci. Rep., Accepted*.

***Peer-Reviewed Conference Proceeding*** [§]

1. T. K. Tran, W. Park, J. W. Tomm, B. K. Wagner, S. M. Jacobsen, and C. J. Summers, "Photoluminescence Properties of $ZnGa_2O_4$:Mn Phosphor Powders", *Proceedings of SPIE*, Vol. 2554, p.253-264, 1995. - Conducted photoluminescence spectroscopy and provided key theoretical modeling and analysis.
2. W. Tong, X. Shen, B. K. Wagner, T. K. Tran, W. Ogle, W. Park, T. Yang, and C. J. Summers, "Metalorganic Molecular Beam Epitaxy of ZnS for Flat Panel Displays", *Proceedings of SPIE*, Vol. 2408, p.182-193, 1995. - Conducted photoluminescence spectroscopy.
3. W. Park, T. Yang, M. Chaichimansour, W. Tong, B. K. Wagner, and C. J. Summers, "Photoluminescence Properties of SrS:Ce Thin Films Grown by Molecular Beam Epitaxy", *Proceedings of the Third International Display Workshop*, p.49, 1996. - Conducted photoluminescence spectroscopy and provided theoretical analysis.
4. W. Park, T. K. Tran, W. Tong, M. M. Kyi, S. Schön, B. K. Wagner, and C. J. Summers, "Photoluminescence Properties of δ-doped ZnS:Mn Grown by Metal-Organic Molecular Beam Epitaxy", *Proceedings of Materials Research Society Symposium*, vol. 424, p.465-470, 1996. - Conducted photoluminescence spectroscopy and provided theoretical analysis.
5. W. Park, T. C. Jones, W. Tong, B. K. Wagner, and C. J. Summers, "Photoluminescence Properties of SrS:Ce,Ag Thin Film Phosphors", *Proceedings of the Fourth International Display Workshop*, p.645, 1997. - Conducted photoluminescence spectroscopy and provided theoretical analysis.
6. W. Park, T. C. Jones, E. Mohamed, C. J. Summers, and S.-S. Sun, "Optical Properties of SrS:X (X=Cu, Ag) Thin Film Phosphors", *Proceedings of the Fifth International Display Workshop*, p.613, 1998. - Conducted photoluminescence spectroscopy and provided theoretical analysis.
7. T. C. Jones, W. Park, E. Mohamed, B. K. Wagner, C. J. Summers, and S.-S. Sun, "Luminescence Properties of Thin-Film SrS:Cu Phosphors for Electroluminescent Displays", *Proceedings of Materials Research Society Symposium*, vol. 508, p.281-287, 1998. - Conducted photoluminescence spectroscopy and provided theoretical analysis.
8. W. Park, T. C. Jones, B. K. Wagner, and C. J. Summers, "Multi-Layer Stacked Electroluminescent Devices", *SID International Symposium Digest*, vol. 30, p.592-595, 1999. - Invented new device concept and conducted device modeling.
9. W. Park, T. C. Jones, C. J. Summers and S.-S. Sun, "Luminescence Properties of SrS:Cu,Eu Two-Component Electroluminescent Phosphors", *Proceedings of the 10th International Workshop on Inorganic and Organic Electroluminescence*, p.451, 2000. - Conducted photoluminescence spectroscopy and provided theoretical analysis.
10. (Invited paper) B. K. Wagner, F. Zhang, P. Manigault, W. Park, C. J. Summers, P. N. Yocom and D. Zarimba, "Recent Developments in Low Voltage Cathodoluminescent Phosphors", *Proceedings of the Seventh International Display Workshop*, p. 833-836, 2000. - Made materials, conducted cathodoluminescence measurements.
11. W. Tong, Y. B. Xin, B. K. Wagner, W. Park and C. J. Summers, "Recent Development of SrS Based EL Materials", *Proceedings of the 10th International Workshop on Inorganic and Organic Electroluminescence*, p.433, 2000. - Conducted photoluminescence spectroscopy.
12. J. Ihanus, M. Ritala, M. Leskelä, E. Soininen, M. Lahonen, A. Kaloyeros, W. Harris, K. Barth, A. Topol, W. Park, T. Sajavaara and J. Keinonen, "Pulsing of $H_2$ during the ALE growth of SrS:Cu", *Proceedings*

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[§] My contribution is briefly described for each article. Authors for whom I was the principal advisor are underlined.
Article 13 and later are published after I moved to the University of Colorado.

*of the 10th International Workshop on Inorganic and Organic Electroluminescence*, p.443, 2000. - Conducted photoluminescence spectroscopy and provided theoretical analysis.

13. C. Neff, W. Park and C. J. Summers, "Dynamic photonic crystal superlattices", *Proceedings of IEEE Lasers and Electro-Optics Society Annual Meeting*, vol. 1, p.190-191, 2002. - Designed new nanostructure and conducted simulations.
14. W. Park and T. Borsa, "Synthesis and Self-Assembly of Metal-Coated Dielectric Spheres for 3D Photonic Crystal Structures", *Proceedings of Materials Research Society Symposium*, vol. 820, p. 289-294, 2004. - Made nanomaterials, conducted simulations and optical characterizations.
15. W. Park, E. Schonbrun, M. Tinker and J.-B. Lee, "Tunable nanophotonic device based on flexible photonic crystal", *Proceedings of SPIE*, vol. 5511, p. 165-172, 2004. - Designed new nanostructure, conducted simulations and optical characterizations.
16. (Invited paper) C. J. Summers, C. Neff, B. K. Wagner and W. Park, "Tunable Photonic Crystal Structures", *Proceedings of SPIE*, vol. 5511, p. 81-92, 2004. - Designed new nanostructure and conducted simulations.
17. W. Park, E. Schonbrun, M. Tinker and J.-B. Lee, "Mechanically Tunable Nanophotonic Devices", *Proceedings of Materials Research Society Symposium*, vol. 873, p. 123-128, 2005. - Designed new nanostructure and conducted simulations and optical characterizations.
18. E. Schonbrun, Q. Wu, W. Park, M. Tinker and J.-B. Lee, "Negative Refraction and Imaging in a Flexible Photonic Crystal", *Proceedings of SPIE*, vol. 5926, p. 140-145, 2005. - Designed new nanostructure and conducted simulations and optical characterizations.
19. Y. Cui, Q. Wu, E. Schonbrun, M. Tinker, J.-B. Lee, and W. Park, "Silicon-Based 2D Slab Nano Photonic Crystal TM Polarizer in Telecommunication Wavelength", *The 7th IEEE International Conference on Nanotechnology*, Hong Kong, Aug. 2-5, 2007, Accepted. - Designed new nanostructure and conducted simulations and optical characterizations.
20. Y. Cui, V. A. Tamma, J.-B. Lee and W. Park, "Mechanically Tunable Negative Index Photonic Crystal Lens", *Proceedings of SPIE*, to be published.
21. J. Blair, V. A. Tamma, W. Park, and C. J. Summers, "Dielectric optical invisibility cloak", *Proceedings of SPIE*, to be published.

***Other Conference Presentations*** [**]

1. W. Park, T. K. Tran, W. Tong, B. K. Wagner, and C. J. Summers, "High-quality ZnS thin film growth for flat panel display", *The First International Conference on the Science and Technology of Display Phosphors*, San Diego, CA, Nov. 14-16, 1995.
2. T. Yang, M. Chaichimansour, W. Park, B. K. Wagner and C. J. Summers, "MBE growth and characterization of $SrGa_2S_4$:Ce blue phosphor for thin-film electroluminescence", *The First International Conference on the Science and Technology of Display Phosphors*, San Diego, CA, Nov. 14-16, 1995.
3. W. Park, T. C. Jones, W. Tong, B. K. Wagner, C. J. Summers, and S.-S. Sun, "Luminescent Properties of a New Blue EL Phosphor, SrS:Cu", *The Third International Conference on the Science and Technology of Display Phosphors*, Huntington Beach, CA, Nov. 3-5, 1997.
4. W. Park, T. Jones, S. Schön, W. Tong, B. K. Wagner, and C. J. Summers, "Luminescent Properties of Mn Ions in Homogeneously- and Delta-Doped ZnS:Mn", *American Physical Society March Meeting*, Kansas City, MO, Mar. 17-21, 1997.

[**] Authors for whom I was the principal advisor are underlined.
Presentation 14 and later are made after I moved to the University of Colorado.

5. W. Park, T. C. Jones, E. Mohammed, C. J. Summers, and S.-S. Sun, "Luminescence Properties of SrS:Cu,Ag Thin Film electroluminescent Phosphors", *The Ninth International Workshop on Inorganic and Organic Electroluminescence and the Fourth International Conference on the Science and Technology of Display Phosphors*, Bend, OR, Sep. 14-17, 1998.
6. H. M. Menkara, W. Park, M. Chaichimansour, T. C. Jones, E. Mohamed, B. K. Wagner, and C. J. Summers, "Evaporation and Characterization of SrS:Cu,Ag EL Devices", *The Ninth International Workshop on Inorganic and Organic Electroluminescence and the Fourth International Conference on the Science and Technology of Display Phosphors*, Bend, OR, Sep. 14-17, 1998.
7. W. Tong, Y. Xin, M. Chaichimansour, J. Choi, T. C. Jones, W. Park, B. K. Wagner, and C. J. Summers, "MBE Growth of SrS:Cu", *The Ninth International Workshop on Inorganic and Organic Electroluminescence and the Fourth International Conference on the Science and Technology of Display Phosphors*, Bend, OR, Sep. 14-17, 1998.
8. W. Park, B. K. Wagner, G. Russell, K. Yasuda, C. J. Summers, Y. R. Do and H. G. Yang, "Enhanced Low Voltage Cathodoluminescence Performance of ZnS Phosphors Coated with $SiO_2$", *The Fifth International Conference on the Science and Technology of Display Phosphors*, San Diego, CA, Nov. 8-10, 1999.
9. W. Tong, Y. Xin, E. Mohammed, W. Park and C. J. Summers, "Physical Vapor Deposition of SrS:Pb and CaS:Cu Blue TFEL Phosphors", *The Fifth International Conference on the Science and Technology of Display Phosphors*, San Diego, CA, Nov. 8-10, 1999.
10. Y. B. Xin, W. Tong, M. Chaichimansour, W. Park and C. J. Summers, "Microstructure Analysis of MBE-Grown SrS-Based Phosphors", *The Fifth International Conference on the Science and Technology of Display Phosphors*, San Diego, CA, Nov. 8-10, 1999.
11. W. Park, C. J. Summers, Y. R. Do and H. G. Yang, "Photoluminescence Properties of Red $BaGdB_9O_{16}$:Eu Phosphor", *The Sixth International Conference on the Science and Technology of Display Phosphors*, San Diego, CA, Nov. 6-8, 2000.
12. W. Park, E. Mohamed, W. Tong, S. R. Stock and C. J. Summers, "Luminescence Properties of $Sr_xCa_{1-x}S$:Cu Thin Film Phosphors", *The Sixth International Conference on the Science and Technology of Display Phosphors*, San Diego, CA, Nov. 6-8, 2000.
13. W. Park and C. J. Summers, "ZnS-Based Two-Dimensional Photonic Crystals", *The First Georgia Tech Conference on Nanoscience and Nanotechnology*, Atlanta, GA, Oct. 16-18, 2000.
14. (Invited) W. Park, J. S. King, C. W. Neff, C. Liddell and C. J. Summers, "ZnS-Based Photonic Crystals", *The 10th International Conference on II-VI Compounds*, Bremen, Germany, Sep. 9-14, 2001.
15. W. Park, C. W. Neff and C. J. Summers, "Tunable 2D Photonic Crystal Slabs Exhibiting Extraordinary Refraction and Dispersion", *The Fourth International Workshop on Photonic and Electromagnetic Crystal Structures*, Los Angeles, CA, Oct. 28-31, 2002.
16. (Invited) C. J. Summers and W. Park, "Novel photonic architectures: liquid crystal infiltrated photonic crystals", *SPIE International Symposium on Optical Science and Technology*, San Diego, CA, Aug. 3-8, 2003.
17. W. Park, E. Schonbrun, M. Tinker and J.-B. Lee, "Flexible Photonic Crystal – A New Pathway to Tunability", *The Fifth International Symposium on Photonic and Electromagnetic Crystal Structures*, Kyoto, Japan, Mar. 7-11, 2004.
18. (Invited) W. Park, "Mechanically Tunable Photonic Crystals", *The 7th Mediterranean Workshop and Topical Meeting on Novel Optical Materials and Applications*, Cetraro, Italy, May 29 - June 4, 2005.
19. W. Park, E. Schonbrun, Q. Wu, M. Tinker and J.-B. Lee, "Tunable Negative Refraction in Si-Polymer Photonic Crystal Membrane", *The Sixth International Symposium on Photonic and Electromagnetic Crystal Structures*, Crete, Greece, Jun. 19-24, 2005.

20. Q. Wu. E. Schonbrun, W. Park M. Tinker and J.-B. Lee, "Tunable Two-Dimensional Photonic Crystal Slab Exhibiting Broadband Sub-Wavelength Resolution", *The 4th Symposium on Photonics, Networking and Computing in Conjunction with the 8th Joint Conference on Information Science*, Salt Lake City, UT, Jul. 21-23, 2005.
21. W. Park, "Photonic Nanostructures for Negative Index Materials", *The First Nanoscience and Applications Conference*, Boulder, CO, Oct. 17-19, 2005.
22. W. Park, K. R. Shroyer, and A. Meyers, "Novel Nanoprobes for Cancer Imaging and Treatment", *CU-NIST Fall Symposium*, Nov. 14, 2005.
23. J.-H. Lee, Q. Wu and W. Park, "Three Dimensional Metallodielectric Photonic Crystal Based on Self-Assembled Gold Nanoshells", *Materials Research Society Symposium*, Boston, MA, Nov. 28-Dec. 2, 2005.
24. (Invited) W. Park, "Photonic Crystal Approach for Negative Index Materials", *The 36th Winter Colloquium on the Physics of Quantum Electronics*, Snowbird, UT, Jan. 2-6, 2006.
25. W. Park, E. Schonbrun, Q. Wu, T. Yamashita, C. J. Summers, Y. Cui, M. Tinker and J.-B. Lee, "Negative Index Imaging by Si-Based 2D Photonic Crystal Structures", *Materials Research Society Symposium*, San Francisco, CA, Apr. 17- 21, 2006.
26. E. Schonbrun, Q. Wu, W. Park, T. Yamashita and C. J. Summers, "Matched Negative Index Imaging in the Near-Infrared with Silicon Photonic Crystals", *2006 Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference*, Los Angeles, CA, May 21-26, 2006.
27. W. Park, E. Schonbrun, Q. Wu, Y. Yamashita, C. J. Summers, M. Tinker, Y. Cui, and J.-B. Lee, "Negative Refraction in Si-based 2-dimensional Slab Photonic Crystal Structures", *OSA Topical Meeting on Photonic Metamaterials: From Random to Periodic*, Grand Island, The Bahamas, Jun. 5-8, 2006.
28. Z. A. Sechrist, B. T. Schwartz, J. H. Lee, F. H. Fabreguette, J. A. McCormick, W. Park, R. Piestun, and S. M. George, "Selective Modification of Opal Photonic Crystals Using Atomic Layer Deposition", *The Optical Society of America Topical Meeting on Photonic Metamaterials: From Random to Periodic*, Grand Island, The Bahamas, Jun. 5-8, 2006.
29. (Invited) W. Park, "Negative Refraction in 2D Si-Based Photonic Crystal Structures", *Frontiers in Optics 2006: The 90th Optical Society of America Annual Meeting*, Rochester, NY, Oct. 8-12, 2006.
30. (Invited) W. Park, "Si-Based 2D Photonic Crystal Structures", *International Symposium on Biophotonics, Nanophotonics and Metamaterials*, Hangzhou, China, Oct. 16-18, 2006.
31. (Invited) W. Park, "Negative Refraction and Self-Collimation in Si-Based 2D Photonic Crystal Structures", *Binational Consortium of Optics School: Optics of Novel Materials and of Condensed Matter,* Tucson, AZ, Nov. 17-20, 2006.
32. (Invited) W. Park, "On-Chip Spectroscopy System for Cancer Detection", *US-Ireland R&D Partnership Workshop*, Dublin, Ireland, February, 20-21, 2007.
33. W. Park, E. Schonbrun, M. Abashin, Y. Fainman, T. Yamashita and C. J. Summers, "Self-Collimation in Si 2D Photonic Crystal Structures", *The Seventh International Workshop on Photonic and Electromagnetic Crystal Structures*, Monterey, CA, Apr. 8-11, 2007.
34. J. Lee and W. Park, "3D Metallodielectric Photonic Crystal Based on Gold Nanoshells", *Materials Research Society Symposium*, San Francisco, CA, Apr. 9- 13, 2007.
35. E. Schonbrun, Q. Wu, W. Park, T. Yamashita, J. Blair, and C. J. Summers, "Photonic Crystal Reflection Prisms", *2007 Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference*, Baltimore, MD, May 6-11, 2007.
36. Q. Wu, E. Schonbrun and W. Park, "Image Inversion and Magnification by Negative Index Prisms", *2007 Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference*, Baltimore, MD, May 6-11, 2007.
37. (Invited) W. Park, "Anomalous Refraction in Silicon-Based 2-Dimensional Photonic Crystal Structures", *OSA Topical Meeting on Photonic Metamaterials: From Random to Periodic*, Jackson Hole, WY, Jun. 4-7, 2007.

38. Q. Wu and W. Park, "Silver Nanowire Cluster Photonic Crystal Exhibits Negative Permeability", *OSA Topical Meeting on Photonic Metamaterials: From Random to Periodic*, Jackson Hole, WY, Jun. 4-7, 2007.
39. W. Park and Q. Wu, "Optical Frequency Magnetic Activity in Metal Nanocluster Photonic Crystal – A New Metamaterial Architecture", *OSA Topical Conference on Nanophotonics*, Hangzhou, China, Jun. 18-21, 2007.
40. (Invited) W. Park, "Negative Refraction in 2-Dimensional Silicon Photonic Crystals", *5th Symposium on Photonics, Networking and Computing in Conjunction with the 10th Joint Conference on Information Science*, Salt Lake City, UT, Jul. 18-19, 2007.
41. Q. Wu, J.-H. Lee, J. Ahn and W. Park, "Metal Nanocluster Metamaterial", *2008 Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference*, San Jose, CA, May 4-9, 2008.
42. J. Ahn, W. Park, L. Bemis and W. A. Robinson, "Recognition of double-stranded DNA by gold nanoprobes for malignant melanoma detection", *2008 Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference*, San Jose, CA, May 4-9, 2008.
43. J.-H. Lee, J. Xue, Q. Wu, W. Park and A. Mickelson, " Active Polymer-Based Surface Plasmon-Polariton Waveguides", *10th International Conference on Organic Nonlinear Optics*, Santa Fe, NM, May 18-23, 2008.
44. J.-H. Lee, Q. Wu, J. Xue, W. Park and A. Mickelson, "Active Plasmonics", *2008 IEEE AP-S & USNC/URSI Symposium*, San Diego, CA, Jul. 5-12, 2008.
45. J.-H. Lee and W. Park, "Three-Dimensional Metal Dielectric Photonic Crystal Based on Self-Assembled Gold Nanoshells", *SPIE Optics + Photonics*, San Diego, CA, Aug. 10-14, 2008.
46. W. Park, J.-H. Lee, J. Xue, Q. Wu and A. Mickelson, "Polymer-Based Active Plasmonic Devices", *236th American Chemical Society National Meeting & Exposition*, Philadelphia, PA, August 17-21, 2008.
47. J.-H. Lee, Q. Wu and W. Park, "Magnetic Resonance in Near Infrared Region of Gold Nanoparticle Cluster Metamaterial", *OSA Topical Meeting on Plasmonics and Metamaterials Optics*, Rochester, NY, Oct. 20-23, 2008.
48. (Invited) W. Park, "Nanocluster Metamaterial", *Progress In Electromagnetics Research Symposium*, Beijing, China, Mar. 23-27, 2009.
49. V. A. Tamma, J. H. Lee, Q. Wu and W. Park, "Self-Assembled Metal Nanocluster Metamaterials", *2009 Conference on Lasers and Electro-Optics and the International Quantum Electronics Conference*, Baltimore, MD, May 31 – Jun 5, 2009.
50. (Invited) W. Park, "Metal Nanocluster Metamaterials", *The 9th Mediterranean Workshop and Topical Meeting on Novel Optical Materials and Applications*, Cetraro, Italy, Jun. 7-13, 2009.
51. Y. H. Cui, Q. Wu, W. Park, J. Jeon, M. J. Kim, and J.-B. Lee, "MEMS-based mechanically tunable flexible photonic crystal", *The 15th International Conference on Sensors, Actuators and Microsystems (Transducers 2009)*, Denver, CO, Jun. 21-25, 2009.
52. V. A. Tamma, J. Blair, J. H. Lee, Q. Wu, S. J. Rhee, C. J. Summers and W. Park, "Near-Infrared Ground Plane Cloak Based on Silicon Nanorod Array", *Frontiers in Optics 2009: The Optical Society of America Annual Meeting*, San Jose, CA, Oct. 11-15, 2009.
53. W. Park, Y. Cui, V. A. Tamma and J.-B. Lee, "Mechanically Tunable Negative Index Photonic Crystal Lens", *OSA Topical Meeting on Nanophotonics*, Tsukuba, Japan, May 30 - Jun. 3, 2010.
54. V. A. Tamma, J. Blair, C. J. Summers and W. Park, "All-Dielectric Near-Infrared Ground Plane Cloak", *OSA Topical Meeting on Photonic Metamaterials and Plasmonics*, Tucson, AZ, Jun. 7-8, 2010.
55. V. A. Tamma, S. Joshi, and W. Park, "Optical Frequency Negative-Index Material Based On Silver Nanocluster Metamaterial", *OSA Topical Meeting on Photonic Metamaterials and Plasmonics*, Tucson, AZ, Jun. 7-8, 2010.
56. C. J. Summers, H. Menkara, and W. Park, "Nanocrystalline Phosphors for Lighting and Detection Applications", The 7th Pacific Rim International Conference on Advanced Materials and Processing (PRICM 7), Cairns, Australia, Aug. 2-6, 2010.

57. Y. Cui, V. A. Tamma, J.-B. Lee and W. Park, "Mechanically Tunable Negative Index Photonic Crystal Lens", *SPIE Optics + Photonics*, San Diego, CA, Aug. 1-5, 2010.
58. (Invited) W. Park, R. Pratibha and I. I. Smalyukh, "Tunable Metamaterial Based on Liquid Crystal Gold Nanoparticle Composite", *SPIE Optics + Photonics*, San Diego, CA, Aug. 1-5, 2010.
59. J. Blair, V. A. Tamma, W. Park, and C. J. Summers, "Dielectric optical invisibility cloak", *SPIE Optics + Photonics*, San Diego, CA, Aug. 1-5, 2010.
60. M. Hoerner, X. Yu, V. A. Tamma and W. Park, "Plasmonic Nanostructures for Organic Photovoltaic Devices", *LCOPV 2010 Workshop on Directing Nanoscale Organization in Organic Photovoltaics: Liquid Crystal for Energy*, Boulder, CO, Aug. 7-10, 2010.
61. W. Park, V. A. Tamma, J. Blair and C. J. Summers, "Dispersion Characteristics of All-Dielectric Optical Frequency Cloak Based on Silicon Nanorods", *The Ninth International Symposium on Photonic and Electromagnetic Crystal Structures*, Granada, Spain, Sep. 26-30, 2010.
62. (Invited) W. Park, "Light trapping nanostructures for organic solar cells", *CNL/NNIN Symposium on Nanotechnology and Energy*, Boulder, CO, Oct. 25-26, 2010.
63. Y. Cui, V. A. Tamma, and W. Park, "Mechanical Tuning of Surface Plasmon in Flexible Gold Nanograting", *2011 Conference on Lasers and Electro-Optics and Quantum Electronics Laser Science Conference*, Baltimore, MD, May 1-6, 2011.
64. X. Yu, N. Azarova, S. Joshi and W. Park, "Plasmonic Nanostructures for Organic Photovoltaic Devices", *2011 Conference on Lasers and Electro-Optics and Quantum Electronics Laser Science Conference*, Baltimore, MD, May 1-6, 2011.
65. N. Azarova, X. Yu and W. Park, "Light Trapping by Plasmonic Nanostructures in Organic Solar Cells", *The 5th International Conference on Surface Plasmon Photonics*, Busan, Korea, May 15-20, 2011.
66. (Invited) W. Park, "Plasmonic Nanostructures for Photovoltaic Applications", *The 10th Mediterranean Workshop and Topical Meeting on Novel Optical Materials and Applications*, Cetraro, Italy, Jun. 5-11, 2011.
67. M. Mohamed, Z. Li, E. Dudley, X. Chen, L. Shang, W. Park, and A. Mickelson, "Adiabatic Couplers for Linear Power Division", *OSA Topical Meeting on Integrated Photonics Research, Silicon and Nano Photonics*, Toronto, Canada, Jun 12-15, 2011.
68. X. Chen, D. Espinoza, E. Dudley, Z. Li, M. Mohamed, Y. Cui, W. Park, L. Shang and A. Mickelson, "Polymer-Clad Silicon on Insulator Slot Modulator", *OSA Topical Meeting on Integrated Photonics Research, Silicon and Nano Photonics*, Toronto, Canada, Jun 12-15, 2011.
69. V. A. Tamma, T.-E. Wang, J. Zhou, C. L. Holloway, E. F. Kuester and W. Park, "Metamaterial Inspired Electrically Small Patch Antenna", *2011 IEEE International Symposium on Antennas and Propagation and USNC/URSI National Radio Science Meeting*, Spokane, WA, Jul. 3-8, 2011.
70. K. Emoto, T. Martin, A. Seifpour, A. Jayaraman and W. Park, "Nanoparticle Self-Assembly by Copolymer Ligands", *Materials Research Society Workshop on Directed Self-Assembly of Materials*, Nashville, TN, Sep. 28 - Oct. 1, 2011.
71. K. Emoto, Y. Jin, W. Zhang and W. Park, "Cage Molecule Mediated Self-Assembly of Plasmonic Metamaterials", *Materials Research Society Workshop on Directed Self-Assembly of Materials*, Nashville, TN, Sep. 28 - Oct. 1, 2011.
72. (Invited) W. Park, "Scalable Metamaterial by Self-Assembly", *The 3rd International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Paris, France, Apr. 19 - 22, 2012.
73. (Invited) Y. Cui, J. Zhou, V. A. Tamma and W. Park, "Dynamic Tuning and Symmetry Lowering of Fano Resonance in Plasmonic Nanostructure", *The 3rd International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Paris, France, Apr. 19 - 22, 2012.
74. W. Park, E. Rengnath, D. Lu, X. Yu, J.-S. Lemaire, Z. Li and C. J. Summers, "Surface Plasmon Enhanced Luminescence Up-Conversion", *The 3rd International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Paris, France, Apr. 19 - 22, 2012.
75. V. A. Tamma, Y. Cui, J. Zhou and W. Park, "Tunable Resonance in Flexible Plasmonic Nanostructures", *CLEO 2012 Laser Science to Photonic Applications*, San Jose, CA, May 6 - 11, 2012.

76. (Invited) W. Park, "Optical metamaterial thin films by nanoparticle self-assembly", *SPIE Optics + Photonics*, San Diego, CA, Aug. 12-16, 2012.
77. (Invited) W. Park, "Manipulating light scattering with plasmonic nanostructures", *Asia Communications and Photonics Conference*, Guangzhou, China, Nov. 7-10, 2012.
78. (Invited) V. A. Tamma, Y. Cui, J. Zhou and W. Park, "Manipulation of Light Scattering by Plasmonic Nanocomposite Structures", *The 4th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Sharjah, United Arab Emirates, Mar. 18 - 22, 2013.
79. D. Lu, Y. Cui, S. Cho, L. Brun, C. J. Summers and W. Park, "Surface Plasmon Enhanced Luminescence Up-Conversion", *CLEO 2013 Laser Science to Photonic Applications*, San Jose, CA, Jun. 10 - 14, 2013.
80. D. Lu, E. Rengnath, Y. Cui, and W. Park, "Interaction of two plasmon modes in the organic photovoltaic devices with patterned back-electrode", *CLEO 2013 Laser Science to Photonic Applications*, San Jose, CA, Jun. 10 - 14, 2013.
81. M. R. Krogstad, E. Rengnath, W. Park, and J. T. Gopinath, "Third-Order Nonlinearities of $Ge_{28}Sb_{12}Se_{60}$ for Waveguide Devices", *CLEO 2013 Laser Science to Photonic Applications*, San Jose, CA, Jun. 10 - 14, 2013.
82. C. J. Summers, H. Menkara, L. Brun, L. Freud, C. Schneller, D. Lu, S. Cho, W. Park, "Optimized Synthesis and Plasmonic Enhancement of Upconversion $NaYF_4$:Yb(20%),Er(2%) Phosphors", *The 19th International Vacuum Congress*, Paris, France, Sep. 9 - 13, 2013.
83. D. Rourke, S. Ahn, J. van de Lagemaat, N. Kopidakis, A. Nardes and W. Park, "Combined Optical and Electrical Modeling of Plasmon-Enhanced Organic Photovoltaic Devices", *Optical Nanostructures and Advanced Materials for Photovoltaics*, Tucson, AZ, Nov. 3 - 6, 2013.
84. (Invited) W. Park, "Self-Assembly Based on Molecular Cages", *The 5th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Singapore, May 20 - 23, 2014.
85. D. Rourke, S. Ahn, A. Nardes, J. van de Lagemaat, N. Kopidakis and W. Park, "Comprehensive Device Modeling of Plasmon-Enhanced and Optical Field-Dependent Photocurrent Generation in Organic Bulk Heterojunctions", *The 40th IEEE Photovoltaic Specialists Conference*, Denver, CO, Jun. 8 - 13, 2014.
86. S. Ahn, D. Rourke, A. Nardes, J. van de Lagemaat, N. Kopidakis and W. Park, "Surface Plasmon Enhanced Infrared Absorption in the Sensitized Polymer Solar Cell", *The 40th IEEE Photovoltaic Specialists Conference*, Denver, CO, Jun. 8 - 13, 2014.
87. (Invited) W. Park, "Plasmonic Structures for Organic Photovoltaic Devices", *SPIE Optics + Photonics*, San Diego, CA, Aug. 17-21, 2014.
88. D. Lu, S. Cho, S. Ahn, L. Brun, C. J. Summers and W. Park, "Mechanism of plasmon enhanced upconversion processes in $NaYF_4$:$Yb^{3+}$,$Er^{3+}$ nanoparticles", *SPIE Optics + Photonics*, San Diego, CA, Aug. 17-21, 2014.
89. S. Cho, L.-J. Su, X. Yang, T. W. Flaig and W. Park, "Gold nanorods coupled with upconversion phosphors for simultaneous bladder cancer detection and treatment", *SPIE Optics + Photonics*, San Diego, CA, Aug. 17-21, 2014.
90. (Invited) W. Park, "Plasmon enhancement of frequency upconversion by Förster energy transfer process", *International Symposium on Electro-Optics and Nonlinear Optics*, Harbin, China, Sep. 2-4, 2014.
91. (Invited) W. Park, "Plasmonic Nanostructures for Organic Photovoltaic Devices", *Optical Nanostructures and Advanced Materials for Photovoltaics*, Canberra, Australia, Dec. 2-5, 2014.
92. (Invited) W. Park, "Energy and Biomedical Applications of Plasmonic Nanostructures", *The 17th International Symposium on the Physics of Semiconductors and Applications*, Jeju, Korea, Dec. 7-11, 2014.
93. S. K. Cho, S. Ahn, W. Park, L.-J. Su and T. W. Flaig, "A new and efficient surface modification of $NaYF_4$:$Yb^{3+}$,$Er^{3+}$ upconversion phosphor nanoparticles for biomedical imaging and organic photovoltaic applications", *249th American Chemical Society National Meeting & Exposition*, Denver, CO, Mar. 22-26, 2015.

94. M. Krogstad, S. Ahn, W. Park and J. Gopinath, "Characterization of $Ge_{28}Sb_{12}Se_{60}$ Waveguides", *CLEO 2015 Laser Science to Photonic Applications*, San Jose, CA, May 10-15, 2015.
95. (Invited) W. Zhang and W. Park, "Cage template synthesis and cage directed assembly of gold nanoparticles", *The 6th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, New York, Aug. 4-7, 2015.
96. D. Lu, C. Mao, S. Ahn, S. K. Cho and W. Park, "Transient spectroscopic study of upconversion energy transfer processes coupled with Plasmonic field", *The 6th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, New York, Aug. 4-7, 2015.
97. C. Mao, L. He, J. Cha and W. Park, "Plasmon enhanced luminescence upconversion in Au and $NaYF_4$:$Yb^{3+}$,$Er^{3+}$ nanoparticle clusters", *SPIE Optics + Photonics*, San Diego, CA, Aug. 9-13, 2015.
98. S. Ahn and W. Park, "Surface plasmon enhanced infrared absorption in P3HT-based organic solar cells: the effect of infrared sensitizer", *SPIE Optics + Photonics*, San Diego, CA, Aug. 9-13, 2015.
99. D. Lu, W. Park and P. Brady, "Metamaterial Enhanced Rectenna for Efficient Energy Harvesting", *American Vacuum Society 62nd International Symposium and Exhibition*, San Jose, CA, Oct. 18-23, 2015.
100. (Keynote) W. Park, "Photonic Nanostructures for Energy Applications", *International Conference on Advanced Engineering*, Busan, Korea, Oct. 22-24, 2015.
101. (Invited) W. Park, "Plasmonic nanostructures for organic photovoltaic devices", *The 9th International Conference on Advanced Materials and Devices*, Jeju, Korea, Dec. 7-9, 2015.
102. (Invited) W. Park, "Plasmon enhanced luminescence upconversion", *The 5th International Conference on Smart and Multifunctional Materials, Structures and Systems*, Perugia, Italy, Jun. 5-9, 2016.
103. M. Krogstad, S. Ahn, W. Park and J. Gopinath, "Linear and Nonlinear Optical Properties of Ge-Sb-Se Waveguides at Telecom Wavelengths", *CLEO 2016 Laser Science to Photonic Applications*, San Jose, CA, Jun. 5-10, 2016.
104. (Invited) W. Park, "Plasmon Enhanced Luminescence Upconversion in Self-Assembled Nanostructures", *The 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Malaga, Spain, Jul. 25-28, 2016.
105. (Invited) W. Park, "Photonic Nanostructures for Energy and Biomedical Applications", *The US-Korea Conference on Science, Technology and Entrepreneurship*, Dallas, TX, Aug. 10-13, 2016.
106. W. Park, "Plasmon enhanced upconversion for applications in solar energy harvesting", *SPIE Optics + Photonics*, San Diego, CA, Aug. 28 - Sep. 1, 2016.
107. S. K. Cho, L.-J. Su, T. W. Flaig and W. Park, "Gold nanorods coupled with $NaYF_4$:$Yb^{3+}$,$Er^{3+}$ upconverting nanophosphors for targeted thermal ablation and imaging of HTB9 bladder cancer cells", *SPIE Optics + Photonics*, San Diego, CA, Aug. 28 - Sep. 1, 2016.
108. G. Kang, S. K. Cho, M. R. Krogstad, J. T. Gopinath, and W. Park, "Design and fabrication of high-Q chalcogenide glass micro-disk resonators", *SPIE Photonics West*, San Francisco, CA, Jan. 28 - Feb. 2, 2017.
109. (Best Paper Award) G. Kang, C. Mao, S. K. Cho, and W. Park, "Plasmon Enhanced Upconversion Luminescence in the Metal-Insulator-Metal Cylindrical Nanostrucutres", *Materials Research Society Spring Meeting*, Phoenix, AZ, Apr. 17 - 21, 2017.
110. S. K. Cho, and W. Park, "Synthesis and characterization of upconverting, transparent, and conducting indium tin oxide nanoparticles doped rare-earth ions", *Materials Research Society Spring Meeting*, Phoenix, AZ, Apr. 17 - 21, 2017.
111. (Invited) W. Park, "Plasmon enhanced upconversion for biomedical applications", *The 18th US-Korea Conference on Science, Technology and Entrepreneurship*, Washington, DC, Aug. 9-12, 2017.
112. S. K. Cho, L.-J. Su, T. W. Flaig, and W. Park, "Multifunctional nanocluster composed of gold nanorod and upconversion nanoparticle for simultaneous imaging and treatment", *SPIE Photonics West*, San Francisco, CA, Jan. 27 - Feb. 1, 2018.
113. A. Das, C. Mao, S. Cho and W. Park, "Plasmon enhanced upconversion in water-dispersible metal-insulator-metal nanostructures", CLEO Laser Science to Photonic Applications, May 5-10, 2018.

114. (Invited) W. Park, "Theory and Applications of Plasmon Enhanced Luminescence Upconversion", *The 19th International Symposium on the Physics of Semiconductors and Applications*, Jeju, Korea, Jul. 1-4, 2018.
115. W. Park, S. K. Cho, C. Mao, L.-J. Su, T. W. Flaig, "Self-assembled nanoclusters for detection and optoporation-aided chemotherapy of bladder cancer", *International Conference on Self-Assembly of Colloidal Systems*, Sep. 20-22, 2018.

***PATENTS***

1. W. Park and C. J. Summers, "Oxide-Based Quantum Cutter Method and Phosphor System", United States Patent 6,669,867 (Dec. 30, 2003).
2. W. Park, K. Yasuda, B. K. Wagner and C. J. Summers, "Rare Earth Oxide Coated Phosphors and a Process for Preparing The Same", United States Patent 6,699,523 (Mar. 2, 2004).
3. C. J. Summers and W. Park, "Photonic Crystals", United States Patent 6,999,669 (Feb. 14, 2006).
4. W. Park, J.-B. Lee, E. Schonbrun and M. Tinker, "Strain Tunable, Flexible Photonic Crystals", United States Patent 7,283,716 (Oct. 16, 2007).
5. W. McCarthy, R. M. Powers and W. Park, "Optical Metapolarizer Devices", United States Patent 9,116,302 (Aug. 25, 2015).
6. W. Park, T. Flaig, X. Yang, L.-J. Su and K. Emoto, "Multifunctional nanomaterials for treatment of cancer", United States Patent 10,052,393 (Aug. 21, 2018).
7. W. Park and W. Zhang, "Novel self-assembling nanocomposite structures and methods of preparing the same", Patent Applied for (2012).
8. W. Park and J.-B. Lee, "On-Chip Spectroscopy System for Chemical and Biological Detection", Invention Disclosure Filed (2006).
9. W. Park, V. A. Tamma and T. Wang, "Novel antennas using nanowire and hole array based metamaterial structures", Invention Disclosure Filed (2009).
10. W. Park, V. A. Tamma and T. Wang, "Metamaterial based patch antenna", Invention Disclosure Filed (2009).
11. Espinoza, Filipovic, Li, Mickelson, Park, Schwartz, Shang, Vachharajani and Zhou, "Inter-Chip and Intra-Chip Nanophotonic Communication Technology for Core-Based Integrated Circuits", Invention Disclosure Filed (2009).
12. W. Park, "Enhanced luminescence from metal-dielectric system", Invention Disclosure Filed (2009).
13. W. Park, "Novel luminescent materials with strong radiative interaction", Invention Disclosure Filed (2016).
14. W. Park, "Apparatus and methods for enhancing thermal radiation", Provisional Patent Applied (2017).

***COURSES TAUGHT***

1. ECEN 5626 Active Optical Devices (new course)
   Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ece.colorado.edu/~wpark/class/Active_Opt_Dev/).
2. ECEN 5015 Crystal Structures & Device Applications (new course)
   Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ece.colorado.edu/~wpark/class/Crystal/).
3. ECEN 5005 Crystals, Nanocrystals & Device Applications (new course)
   Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ece.colorado.edu/~wpark/class/Crystal/).
4. ECEN 5015 Nanophotonics

Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ecee.colorado.edu/~wpark/class/nanophotonics/).

5. ECEN 5355 Principles of Electronic Devices I
   Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ece.colorado.edu/~wpark/class/ecen5355/).
6. ECEN 5385 Optical Properties of Materials
   Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ece.colorado.edu/~wpark/class/Opt_Prop/).
7. ECEN 4345 Introduction to Solid State
   Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ece.colorado.edu/~wpark/class/Intro_SS/).
8. ECEN 3320 Semiconductor Devices
   Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ece.colorado.edu/~wpark/class/Semicon_Dev/).
9. ECEN 3250 Circuits/Electronics 3
   Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ecee.colorado.edu/~wpark/class/ecen3250/).
10. ECEN 3400 Electromagnetic Fields and Waves
    Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ecee.colorado.edu/~wpark/class/ecen3400/).
11. ECEN 4606 Undergraduate Optics Laboratory
    Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ecee.colorado.edu/~wpark/class/ecen4606/).
12. ECEN 5016 Quantum Mechanics
    Complete set of class notes, homework solutions, exam solutions were prepared and made available through the class website (http://ecee.colorado.edu/~wpark/class/ecen5016/).

***INDIVIDUAL STUDENTS MENTORED - UNDERGRADUATE***

1. Benjamin Wolpoff, ECE undergraduate, independent study in Summer 2003.
2. Julie Lam, ECE undergraduate, independent study in Spring 2006.
3. Alex Silva, ECE undergraduate, independent study in Spring 2006.
4. Nancy Kim, MCDB undergraduate, summer research project through the Butcher Genomics-Biotechnology Supplementary Award, Summer 2006.
5. Michael Duckwitz, ECE undergraduate, independent study in Spring 2007.
6. Kai Gellat, ECE undergraduate, undergraduate research assistant in Spring 2007.
7. Amy L. Han, Biochemistry undergraduate, summer research project through the University of Colorado Cancer Center Student Fellowship Program, Summer 2007. Continuing as Undergraduate Research Assistant in Fall 2007.
8. John Gibbons, Engineering Physics undergraduate, Discovery Apprenticeship in AY 07-08. Received Electrical and Engineering Physics Award.
9. Mark Colbenson, Chemical Engineering undergraduate, Discovery Apprenticeship in Fall 2007.
10. Michael Hoerner, NSF REU student in Summer 2010.
11. Jeremy Kunll, Engineering Physics undergraduate, Undergraduate Research Assistant in Fall 2010.
12. Ginny Kim, Integrative Physiology undergraduate, Undergraduate Research Assistant in Spring 2012.
13. Horacio Londono, Undergraduate from Universitat Politècnica de Catalunya, Spring 2013.
14. Caroline Hughes, Engineering Physics undergraduate, Discovery Apprenticeship in AY 13-14.
15. Zijian Wang, ECEE undergraduate, independent study in Fall 2015.

16. Hyehyun Kim, Chemical Engineering undergraduate, Undergraduate Research Assistant in Spring 2017.

***INDIVIDUAL STUDENTS MENTORED - GRADUATE***

1. Ethan Schonbrun, Ph.D. awarded in May 2007.
2. Qi Wu, Ph.D. awarded in Dec. 2008.
3. Jin-Hyoung Lee, Ph.D. awarded in May 2009.
4. Venkata Tamma, Ph.D. awarded in May 2012.
5. Eric Dudley, Ph.D. awarded in May 2013.
6. Dawei Lu, Ph.D. awarded in Dec. 2015.
7. Suehyun Cho, Ph.D. candidate in May 2018.
8. Devin Rourke, Ph.D. candidate in May 2018.

9. Tomoko Borsa, M.S. awarded in May 2003.
10. Joseph Eaton, M.S. awarded in May 2008.
11. Michael Weimer, M.S. awarded in May 2008.
12. Arvinder Chadha, M.S. awarded in Dec. 2008.
13. Kwangbae Park, M.S. awarded in Dec. 2009.
14. Tin-Ei Wang, M.S. awarded in May 2010.
15. Elisabeth Rengnath, M.S. awarded in Aug. 2012.
16. Natalia Azarova, M.S. awarded in Dec. 2012.
17. Akihiro Shimizu, M.S. awarded in May 2013.
18. Marika Meertens, M.S. awarded in May 2013.

19. Chenchen Mao, Ph.D. candidate in ECEE (Sep. 2013 – Present)
20. Michael Grayson, Ph.D. candidate in ECEE (Aug. 2016 – Present)
21. Ananda Das, Ph.D. candidate in Physics (Jun. 2016 – Present)
22. Connor Wolenski, Ph.D. candidate in ECEE (Aug. 2017 – Present)
23. Charles Mclemore, Ph.D. candidate in Physics (Jun. 2018 – Present)
24. Eric Rappeport, Ph.D. candidate in ECEE (Aug. 2018 – Present)
25. Conrad Bagot, M.S. candidate in ECEE (Aug. 2018 – Present)

26. Jihye Ahn, Ph.D. candidate in ECE (Oct. 2005 – Dec. 2008), transferred to Penn State.
27. Xi Chen, Ph.D. candidate in ECE (Jan. 2009 – Dec. 2009)
28. Saumil Joshi, Ph.D. candidate in ECE (Jan. 2010 – Dec. 2010)
29. Martin Kronberg, M.S. candidate in ECEE (Aug. 2012 – May 2013)
30. Sabrina David, Ph.D. candidate in MSE (Mar. 2014 – May 2014)
31. Sarah Voeller, M.S. candidate in MSE (Sep. 2015 – May 2016)
32. Izabella Berman, Ph.D. candidate in MSE (Aug. 2016 – Dec. 2016)

33. Max Colice, Ph.D. candidate in ECE, OSEP[††] lab rotation in Fall 2001.
34. Kaumudi Nivarthi, M.S. candidate in ECE, independent study in Fall 2004.
35. David Goldstein, Ph.D. candidate in Chemistry, OSEP lab rotation in Fall 2004.
36. Hee Jin Kim, Ph.D. candidate from Seoul National University (Seoul, Korea), visiting student in Fall 2004.
37. Seyitriza Tigrek, Ph.D. candidate in ECE, independent study in Fall 2005.
38. Jihye Ahn, M.S. candidate in ECE, independent study in Summer 2006.
39. Shirin Haji, M.S. candidate in ECE, independent study in Summer 2006.
40. Kasia Kobeszko, Ph.D. candidate in Chemistry, OSEP lab rotation in Spring 2007.

[††] NSF-funded Integrative Graduate Education, Research and Training (IGERT) program on Optical Science and Engineering.

41. Kevin Zekis, Ph.D. candidate in ECE, lab rotation in Fall 2008.
42. Suehyun Cho, Ph.D. candidate in ECE, COSI[‡‡] lab rotation in Fall 2010.
43. Muralidharan Gopalakrishnan, Ph.D. candidate in ECEE, independent study in Spring 2016.

***POST-DOCTORAL RESEARCHERS MENTORED***

1. Ethan Schonbrun, Jan. 2007 – Mar. 2007.
2. Moonsup Han, Jul. 2007 – Feb. 2008.
3. Seukjoo Rhee, Jan. 2008 – Aug. 2009.
4. Zhiya Ma, Jan. 2010 – Jul. 2010.
5. Xiaoqiang Yu, Feb. 2010 – Oct. 2011.
6. Kazunori Emoto, Oct. 2010 – Oct. 2012.
7. Jianhong Zhou, Apr. 2011 – Apr. 2012.
8. Yonghao Cui, Mar. 2010 – Jan. 2013.
9. Lichun Wang, Aug. 2012 – Feb. 2013.
10. Sungmo Ahn, Apr. 2013 – Sep. 2015.
11. Byung Jang Jeong, Aug. 2014 – Jul. 2015.
12. Gumin Kang, Jan. 2016 – Jan. 2017.
13. Tian Xu, Jan. 2017 – Jan. 2018.
14. Kyuyoung Bae, Aug. 2017 – Present

***CONFERENCE & PROFESSIONAL SOCIETY ACTIVITIES***

1. Editorial Board Member, *Journal of Computational and Theoretical Nanoscience* (2004 - Present)
2. Editorial Board Member, *Nano Convergence* (2013 - Present)
2. Program Committee for Photonics Track, *The 8th Joint Conference on Information Sciences*, Salt Lake City, UT, July 21-26, 2005.
3. Program Committee for Fundamental Physics of Periodic and Random Media Session, *2007 Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference (CLEO/QELS)*, Baltimore, MD, May 7-11, 2007.
4. Program Committee for the *International Meeting on Information Display* (2008 – 2012)
5. Guest Editor, Special Issue on Negative Index Materials, *MRS Bulletin* Oct. 2008.
6. International Program and Technical Committee for the *OSA Topical Conference on Nanophotonics*, Nanjing, China, May 26-29, 2008.
7. Co-organizer (with D. Pawlak), A Special Session on the Bottom-up Approach Towards Metamaterials and Plasmonics, *The 4th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Sharjah, United Arab Emirates, Mar. 18 - 22, 2013.
8. Co-organizer (with D. Pawlak), A Special Session on the Bottom-up Approach Towards Metamaterials and Plasmonics, *The 5th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Singapore, May 20 - 23, 2014.
9. Program Committee for Nanoengineering: Fabrication, Properties, Optics, and Devices XI, *SPIE Optics + Photonics 2014*, San Diego, CA, Aug. 17-21, 2014.
10. Program Committee, *International Symposium on Electro-Optics and Nonlinear Optics*, Harbin, China, Sep. 2-4, 2014.
11. Co-organizer (with D. Pawlak), A Special Session on the Bottom-up Approach Towards Metamaterials and Plasmonics, *The 6th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, New York, Aug. 4-7, 2015.

[‡‡] NSF-funded Integrative Graduate Education, Research and Training (IGERT) program on Computational and Optical Sensing and Imaging.

12. Program Committee for Nanoengineering: Fabrication, Properties, Optics, and Devices XI, *SPIE Optics + Photonics 2015*, San Diego, CA, Aug. 9-13, 2015.
13. Senior Member, Optical Society of America.
14. Member, Society of Photographic Instrument Engineers (SPIE).

***CONSULTING ACTIVITIES***

1. NEC USA, Inc., C & C Research Laboratories, Princeton, NJ (2000)
2. Daejoo Electronic Materials Co., Ltd., Shiheung, Korea (2000 - 2002)
3. Georgia Institute of Technology, Atlanta, GA (2001 - 2003)
4. PhosphorTech Corp., Atlanta, GA (2008 - 2009)
5. Redwave Inc., Glen Ellyn, IL (2013 - 2014)

***OTHER SERVICE ACTIVITIES***

1. Member, Graduate Studies Committee, ECE department (2003 - 2009)
2. Chair, Faculty Search Committee in ECE (2007 - 2008)
3. Member, Optics Faculty Search Committee (Chair: Dana Anderson), 2007-2008
4. Member, Executive Committee, ECEE department (2010 - 2015)
5. Chair, Faculty Search Committee in ECEE (2012 - 2013)
6. Member, Provost's Faculty Achievement Award Committee (2013)
7. Chair, Faculty Search Committee in ECEE (2013 - 2014)
8. Member, Exploratory Committee for Bioengineering Minor (2014)
9. Faculty Advisor, Bioengineering Minor Program (2015 - Present)
10. Chair, Faculty Search Committee in ECEE (2016 - 2017)
11. Reviewed research proposals for the National Science Foundation, U.S. Civilian Research & Development Foundation, The Implementation Group and Maryland Technology Development Corporation.
12. Reviewed manuscripts for numerous journals including *ACS Nano*, *ACS Applied Materials and Interfaces*, *ACS Photonics*, *Advanced Materials*, *Applied Physics Letters*, *IEEE Photonics Technology Letters*, *Journal of the Electrochemical Society Letters*, *Journal of Optical Society of America B*, *Journal of Selected Topics in Quantum Electronics, Journal of the Society for Information Display*, *Journal of Solid State Chemistry*, *Light: Science & Applications*, *Materials Research Bulletin*, *Materials Research Society Symposium Proceeding*, *Nature Communications*, *Nanophotonics*, *Optics Express*, *Optics Letters*, *Optical Materials* and *Physical Review B*.

***OUTREACH***

1. Nanotechnology @ Mamie Doud Eisenhower Public Library, An Outreach Program for Children with ages between 9 and 14, Mamie Doud Eisenhower Public Library, Broomfield, CO (2007 - 2015)
   - The 2014 event held on Apr. 5 attracted a total of 58 children and parents.
2. Nanotechnology: the Primer, A Special Lecture for Adults, Mamie Doud Eisenhower Public Library, Broomfield, CO, Apr. 7, 2012.
3. Nanotechnology: the Primer, A Special Lecture for Adults, Aurora Public Library, Aurora, CO, Sep. 9, 2012.
4. Optics at the Nanoscale: From Killing Cancer to Invisibility Cloak, Society for the Advancement of Chicanos and Native Americans (SACNAS) Rocky Mountain Regional Meeting, Denver, CO, Aug. 28, 2009.