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## EDUCATION

University of Florida	Ph. D. in Physical Chemistry	2004 - 2010
University of Science and Technology of China	B. S. in Chemical Physics	1999 - 2004

## EXPERIENCE

Assistant Professor	Brown University	08/2015 - present
Research Scientist	Massachusetts Institute of Technology	2014 ~ 2015
Consultant	QD Vision Inc.	2012 ~ 2015
Postdoctoral Associate	Massachusetts Institute of Technology	09/2010 - 07/2015
Advisor: Mounji Bawendi		
Research Assistant	University of Florida	09/2004 - 05/2010
Advisor: Y. Charles Cao		

## AWARDS AND RECOGNITIONS

- Early Career Research Achievement Award by Brown University 2021
- Vebleo Fellow Award 2021
- Nanoscale Emerging Investigator 2021
- 3M Non-Tenured Faculty Award 2020
- Camille Dreyfus Teacher-Scholar Award 2020
- Emerging Investigator by The Journal of Chemical Physics 2020
- Sloan Research Fellowship 2020
- NSF CAREER Award 2020
- International Association of Advanced Materials Innovation Award 2020
- Young Star Editor Award by Nano Research 2019
- Rising Star by Frontiers in Chemistry 2019
- Highly Cited Author in Royal Society of Chemistry 2019
- Top Reviewer for The Journal of Chemical Physics 2019
- Starter Grant Award by Spectroscopy Society of Pittsburgh 2017
- Brown University IMNI Award 2017
- Emerging Investigator by Royal Society of Chemistry 2017
- University Affairs Committee Faculty Grant Award by Xerox 2017
- Richard B. Salomon Faculty Research Award 2016
- Best Poster Award in 20-Year Quantum Dots Meeting 2015
- Procter & Gamble Research Award 2011
- First prize of Crow-Stasch Award 2010
- Excellent Graduate Student Fellowship Award 2008
- Excellent Undergraduate Student Award 2004

**PUBLICATIONS** (<https://scholar.google.com/citations?user=Rxvx87oAAAAJ&hl=en>)**Publications at Brown**

1. Y. Yuan, D. Kim, J. Zhou, D. Chang, F. Zhu, Y. Nagaoka, Y. Yang, M. Pham, S. Osher, **O. Chen**, P. Ercius, A. Schmid, and J. Miao\* “Three-Dimensional Atomic Packing in Amorphous Solids with Liquid-Like Structure” *Nature Materials* 2022, 21, 95-102.
2. K. Hills-Kimball, I. Lovelace, I. Peng, J. Wang, H. Garces, M. Rios, **O. Chen**, and L-Q. Wang\* “New Insights to the Interactions between Amorphous Georgite Pigment and Linseed Oil Binder that Lead to a Drastic Color Change” *Inorganica Chimica Acta* 2022, 529, 120661.
3. T. Cai, W. Shi, D. Gosztola, K. Kobbekaduwa, H. Yang, N. Jin, Y. Nagaoka, L. Dube, J. Schneider, S. Hwang, J. Gao, X. Ma, and **O. Chen**\* “Colloidal Synthesis and Charge Carrier Dynamics of Cs<sub>4</sub>Cd<sub>1-x</sub>Cu<sub>x</sub>Sb<sub>2</sub>Cl<sub>12</sub> (0 ≤ x ≤ 1) Layered Double Perovskite Nanocrystals.” *Matter* 2021, 4, 2936-2952.
4. S. Lohmann, T. Cai, D. Morrow, **O. Chen**, and X. Ma\* “Brightening of Dark States in CsPbBr<sub>3</sub> Quantum Dots Caused by Light-Induced Magnetism” *Small* 2021, 2101527.
5. Y. Yuan, N. Jin, P. Saghy, L. Dube, H. Zhu, and **O. Chen**\* “Quantum Dot Photocatalysts for Organic Transformations” *J. Phys. Chem. L* 2021, 12, 7180-7193.
6. Y. Sun, H. Zhu, N. Jin, O. Chen, and **J. Zhao**\* “Fast Lifetime Blinking in Compact CdSe/CdS Core/Shell Quantum Dots” *J. Phys. Chem. C* 2021, 125, 15433-15440.
7. K. Hills-Kimball, H. Yang, T. Cai, J. Wang and **O. Chen**\* “Recent Advances in Ligand Design and Engineering in Lead Halide Perovskite Nanocrystals” *Advanced Science* 2021, 2100214.
8. F. Bateni, R. Epps, K. Abdel-atif, R. Dargis, S. Han, A. Volk, M. Ramezani, T. Cai, **O. Chen** and M. Abolhasani\* “Ultrafast Cation Doping of Perovskite Quantum Dots in Flow” *Matter* 2021, 4, 1-19.
9. H. Yang, T. Cai, L. Dube, K. Hills-Kimball and **O. Chen**\* “Synthesis of Ultrathin Perovskite Nanowires via a Postsynthetic Transformation Reaction of Zero-Dimensional Perovskite Nanocrystals” *Crystal Growth & Design* 2021, 21, 1924-1930.
10. Z. Liu, H. Yang, J. Wang, Y. Yuan, K. Hills-Kimball, T. Cai, P. Wang, A. Tang\* and **O. Chen**\* “Synthesis of Lead-Free Cs<sub>2</sub>AgBiX<sub>6</sub> (X = Cl, Br, I) Double Perovskite Nanoplatelets and Their Application in CO<sub>2</sub> Photocatalytic Reduction” *Nano Letters* 2021, 21, 1620-1627.
11. Y. Lv, Y. Yuan, N. Hu, N. Jin, D. Xu\*, R. Wu, H. Shen, **O. Chen**\* and L. Li\* “Thick-Shell CdSe/ZnS/CdZnS/ZnS Core/Shell Quantum Dots for Quantitative Immunoassays” *ACS Applied Nano Materials* 2021, 4, 2855-2865.
12. Y. Nagaoka, M. Suda, I Yoon, N. Chen, H. Yang, Y. Liu, B. Anzures, S. Parman, Z. Wang, M. Gruenwald, H. Yamamoto and **O. Chen**\* “Bulk Grain-Boundary Materials from Nanocrystals” *Chem* 2021, 7, 509-525.
13. A. Fischer, M. Jaeckstein, Y. Yuan, H. Zhu, **O. Chen**, J. Heeren\*, et al. “Lysosomal Lipoprotein Processing in Endothelial Cells Stimulates Adipose Tissue Thermogenic Adaptation” *Cell Metabolism* 2021, 3, 1-18.
14. H. Yang, W. Shi, T. Cai, K. Hills-Kimball, Z. Liu, L. Dube and **O. Chen**\* “Synthesis of Lead-Free Cs<sub>4</sub>(Cd<sub>1-x</sub>Mn<sub>x</sub>)Bi<sub>2</sub>Cl<sub>12</sub> (0 ≤ x ≤ 1) Layered Double Perovskite Nanocrystals with Controlled Mn-Mn Coupling Interactions” *Nanoscale* 2020, 12, 23191-23199.
15. W. Shi, T. Cai, Z. Wang and **O. Chen**\* “The effects of monovalent metal cations on the crystal and electronic structures of Cs<sub>2</sub>MBiCl<sub>6</sub> (M = Ag, Cu, Na, K, Rb, and Cs) perovskites” *J. Chem. Phys.* 2020, 153, 141101.

16. Y. Yuan, H. Zhu, K. Hills-Kimball, T. Cai, W. Shi, Z. Wei, H. Yang, Y. Candler, P. Wang, J. He and **O. Chen**\* “Stereoselective C–C Oxidative Coupling Reactions Photocatalyzed by Zwitterionic Ligands Capped CsPbBr<sub>3</sub> Perovskite Quantum Dots” *Angew. Chem. Int. Ed.* 2020, 59, 2-9.
17. J. Yi, X. Ge, E. Liu, T. Cai, C. Zhao, S. Wen, H. Sanabria, **O. Chen**, A. Rao\* and J. Gao\* “The Correlation between Phase Transition and Photoluminescence Properties of CsPbX<sub>3</sub> (X=Cl, Br, I) Perovskite Nanocrystals” *Nanoscale Advances* 2020, 2, 4390-4394.
18. T. Cai, W. Shi, S. Hwang, K. Kobbekaduwa, Y. Nagaoka, H. Yang, K. Hills-Kimball, H. Zhu, J. Wang, Z. Wang, Y. Liu, D. Su, J. Gao and **O. Chen**\* “Lead-Free Cs<sub>4</sub>CuSb<sub>2</sub>Cl<sub>12</sub> Layered Double Perovskite Nanocrystals” *J. Am. Chem. Soc.* 2020, 142, 11927-11936.
19. L. Peng, H. Zhu, W. Wang, **O. Chen** and X. Ma\* “Influence of Local Structures on the Energy Transfer Efficiencies of Quantum-Dot Films” *Physical Review B* 2020, 102, 035437.
20. T. Cai, J. Wang, W. Li, K. Hills-Kimball, H. Yang, Y. Nagaoka, Y. Yuan, R. Zia, **O. Chen**\* “Mn<sup>2+</sup>/Yb<sup>3+</sup> Codoped CsPbCl<sub>3</sub> Perovskite Nanocrystals with Triple-Wavelength Emission for Luminescent Solar Concentrator” *Advanced Science* 2020, 2001317.
21. Q. Li, D. Zhou, J. Chai, W. So, T. Cai, M. Li, L. Peteanu, **O. Chen**, M. Cotlet, W. Gu, H. Zhu, and R. Jin\* “Structural Distortion and Electron Redistribution in Dual-emitting Gold Nanoclusters” *Nature Communications* 2020, 11, 2897.
22. K. Hills-Kimball, M. J. Perez, Y. Nagaoka, T. Cai, H. Yang, A. H. Davis, W. Zheng and **O. Chen**\* “Ligand Engineering for Mn<sup>2+</sup> Doping Control in CsPbCl<sub>3</sub> Perovskite Nanocrystals via a Quasi-Solid-Solid Cation Exchange Reaction” *Chemistry of Materials* 2020, 32, 2489-2500.
23. Y. Luo, Y. Wang, M. Liu, H. Zhu, **O. Chen**, S. Zou and J. Zhao\* “Colloidal Assembly of Au-Quantum Dot-Au Sandwiched Nanostructures with Strong Plasmon-Exciton Coupling” *J. Phys. Chem. Lett.* 2020, 11, 2449-2456.
24. J. Xu, Y. Yuan, M. Liu, S. Zou, **O. Chen** and D. Zhang\* “Quantification of the Photon Absorption, Scattering, and On-resonance Emission Properties of CdSe/CdS Core/Shell Quantum Dots: Effect of Shell Geometry and Volumes” *Analytical Chemistry* 2020, 92, 5346-5353.
25. L. Jin, X. Su, J. Shi, K-C. Shih, D. Cintron, T. Cai, M-P. Nieh, **O. Chen**, S. Suib, M. Jain\* and J. He\* “Crystalline Mesoporous Complex Oxides: Porosity-Controlled Electromagnetic Response” *Advanced Functional Materials* 2020, 19094191.
26. H. Yang, T. Cai, E. Liu, K. Hills-Kimball, J. Gao and **O. Chen**\* “Synthesis and Transformation of Zero-Dimensional Cs<sub>3</sub>BiX<sub>6</sub> (X=Cl, Br) Perovskite-Analogue Nanocrystals” *Nano Research* 2020, 13, 282-291.
27. Z. Xi, X. Cheng, Z. Gao, M. Wang, T. Cai, M. Muzzio, E. Davidson, **O. Chen**, Y. Jung, S. Sun, Y. Xu, and X. Xia\* “Strain Effect in Palladium Nanostructures as Nanozymes” *Nano Letters* 2020, 20, 272-277.
28. J. Wang, Y. Yuan, H. Zhu, T. Cai, Y. Fang and **O. Chen**\* “Three-Dimensional Macroporous Photonic Crystal Enhanced Photon Collection for Quantum Dot-Based Luminescent Solar Concentrator” *Nano Energy* 2020, 67, 104217.
29. E. Liu, H. Zhu, J. Yi, K. Kobbekaduwa, P. Adhikari, J. Liu, Y. Shi, J. Zhang, H. Li, A. Oprisan, A. M. Rao, H. Sanabria\*, **O. Chen**\* and J. Gao\* “Manipulating Charge Transfer from Core to Shell in CdSe/CdS/Au Heterojunction Quantum Dots” *ACS Applied Materials & Interfaces* 2019, 11, 48551-48555.
30. H. Zhu, T. Cai, Y. Yuan, X. Wang, Y. Nagaoka, J. Zhao, Z. Liu, R. Li and **O. Chen**\* “Pressure-Induced Transformations of Three-Component Heterostructural Nanocrystals with CdS-Au<sub>2</sub>S Janus Nanoparticles as Hosts and Small Au Nanoparticles as Satellites” *ACS Applied Nano Materials* 2019, 2, 6804-6808.

31. H. Yang, W. Fan, K. Hills-Kimball, **O. Chen\*** and L-Q. Wang\* “Introducing Manganese-Doped Lead-Halide Perovskite Quantum Dots – A Simple Synthesis Illustrating Optoelectronic Properties of Semiconductors” *Journal of Chemical Education* 2019, *96*, 2300-2307.
32. C. Yu, X. Guo, Z. Yin, Z. Zhao, X. Li, J. Robinson, M. Muzzio, C. Barbosa, M. Shen, Y. Yuan, J. Wang, J. Antolik, G. Lu, D. Su, **O. Chen**, P. Guduru, C. Seto\* and S. Sun\* “Highly Efficient AuPd Nanoparticle Catalyst for Synthesizing Polybenzoxazole with Controlled Polymerization” *Matter* 2019, *1*, 1-13.
33. M. Que, Z. Dai, H. Yang, H. Zhu, Y. Zong, W. Que, N. Padture, Y. Zhou\* and **O. Chen\*** “Quantum-Dot-Induced Cesium-Rich Surface Imparts Enhanced Stability to Formamidinium Lead Iodide Perovskite Solar Cells” *ACS Energy Letters* 2019, *4*, 1970-1975.
34. J. Xu, Y. Yuan, S. Zou, **O. Chen** and D. Zhang\* “A Divide-and-Conquer Strategy for Quantification of Light Absorption, Scattering, and Emission Properties of Fluorescent Nanomaterials in Solutions” *Analytical Chemistry* 2019, *91*, 8540-8548.
35. N. Chen, T. Cai, W. Li, K. Hills-Kimball, H. Yang, M. Que, Y. Nagaoka, Z. Liu, D. Yang, A. Dong, C. Xu, R. Zia and **O. Chen\*** “Yb- and Mn-Doped Lead-Free Double-Perovskite Cs<sub>2</sub>AgBiX<sub>6</sub> (X=Cl, Br) Nanocrystals” *ACS Applied Materials & Interfaces* 2019, *11*, 16855-16863.
36. Y. Zhang, H. Yang, M. Chen, N. P. Padture\*, **O. Chen\*** and Y. Zhou\* “Fusing Nanocrystals into Thin-Films: Fabrication of High-Performance Perovskite Solar Cells with a Laterally-Homogenous Graded-Heterojunction” *Advanced Energy Materials* 2019, 1900243.
37. H. Zhu, Z. Fan, L. Yu, M. A. Wilson, Y. Nagaoka, D. Eggert, C. Cao, Y. Liu, Z. Wei, X. Wang, J. He, J. Zhao, R. Li, Z. Wang, M. Gruenwald and **O. Chen\*** “Controlling Nanoparticle Orientations in the Self-Assembly of ‘Patchy’ Quantum Dot-Gold Heterostructural Nanocrystals” *J. Am. Chem. Soc.* 2019, *141*, 6013-6021.
38. Y. Yuan, H. Zhu, X. Wang, D. Cui, Z. Gao, D. Su, J. Zhao and **O. Chen\*** “Cu-Catalyzed Synthesis of CdZnSe-CdZnS Alloy Quantum Dots with Highly Tunable Emission” *Chemistry of Materials* 2019, *31*, 2635-2643.
39. J. Zhao\*, **O. Chen\***, J. He\* and S. Zou\* “Metal and Semiconductor Nanocrystals” *Frontiers in Chemistry* 2019, *7*, 310.
40. Y. Yuan, H. Zhu, Y. Nagaoka, R. Tan, A. H. Davis, W. Zheng, **O. Chen\*** “Dual-Color Fluorescent Mn-Doped CdS-ZnS Quantum Dots Modulated by Diarylethene Molecules” *Frontiers in Chemistry* 2019, *7*, 145
41. Y. Nagaoka, H. Zhu, D. Eggert and **O. Chen\*** “Single Component Quasicrystalline Nanocrystal Superlattices through Flexible Polygon Tiling Rule” *Science* 2018, *362*, 1396-1400.
42. Y. Nagaoka, R. Tan, R. Li, H. Zhu, D. Eggert, Y. Wu, Y. Liu, Z. Wang and **O. Chen\*** “Superstructures Generated from Truncated Tetrahedron Quantum Dots” *Nature* 2018, *561*, 378-382.
43. T. Cai, H. Yang, K. Hills-Kimball, J-P. Song, E. Hofman, W. Zheng, B. M. Rubenstein and **O. Chen\*** “Synthesis of All-Inorganic Cd-Doped CsPbCl<sub>3</sub> Perovskite Nanocrystals with Dual-Wavelength Emission” *J. Phys. Chem. Lett.* 2018, *9*, 7079-7084.
44. H. Yang, Y. Zhang, K. Hills-Kimball, Y. Zhou\* and **O. Chen\*** “Building Bridges between Halide Perovskite Nanocrystals and Thin-Film Solar Cells” *Sustainable Energy & Fuels* 2018, *2*, 2381-2397.
45. H. Zhu, Z. Fan, Y. Yuan, M. A. Wilson, K. Hills-Kimball, Z. Wei, J. He, R. Li\*, M. Gruenwald\* and **O. Chen\*** “Self-Assembly of Quantum Dot-Gold Hetero-Dimer Nanocrystals with Orientational Order” *Nano Letters* 2018, *18*, 5049-5056.

46. M. Heine, A. Fischer, C. Schlein, C. Jung, L. Straub, K. Gottschling, N. Mangels, Y. Yuan, S. Nilsson, G. Liebscher, **O. Chen**, R. Schreiber, R. Zechner, L. Scheja and J. Heeren “Lipolysis Triggers a Systemic Insulin Response Essential for Efficient Energy Replenishment of Activated Brown Adipose Tissue in Mice” *Cell Metabolism* 2018, 28, 644-655.
47. H. Zhu, T. Cai, M. Que, J-P. Song, B. M. Rubenstein, Z. Wang and **O. Chen\*** “Pressure-Induced Phase Transformation and Bandgap Engineering of Formamidinium Lead Iodide Perovskite Nanocrystals” *J. Phys. Chem. Lett.* 2018, 9, 4199-4205.
48. F. Chen, H. Zhu, **O. Chen** and M. Zimmt\* “Reactive Two-Component Monolayers Template Bottom-up Assembly of Nanoparticle Arrays on HOPG” *Chemical Communications* 2018, 54, 8056-8059.
49. Y. Chen, J. Cordero, H. Wang, D. Franke, O. Achorn, F. Freyria, I. Coroceanu, H. Wei, **O. Chen**, D. Mooney and M. G. Bawendi\* “A Ligand System for Flexible Functionalization of Quantum Dots via Click Chemistry” *Angew. Chem. Int. Ed.* 2018, 130, 4742-4746.
50. J. Gao\*, A. Rao, H. Li, J. Zhang and **O. Chen** “Carrier Transport Dynamics in High Speed Black Phosphorus Photodetectors” *ACS Photonics* 2018, 5, 1412-1417.
51. J. Lee, X. Feng, **O. Chen**, M. G. Bawendi\* and J. Huang\* “Stable, Small, Specific, Low-Valency Quantum Dots for Single-Molecule Imaging” *Nanoscale* 2018, 10, 4406-4414.
52. D. Dey, Y. Zhou, Y. Sun, J. Jenkins, D. Kriz, S. Suib, **O. Chen**, S. Zou and J. Zhao\* “Excitation Wavelength Dependent Photon Anti-Bunching/Bunching from Single Quantum Dots Near Gold Nanostructures” *Nanoscale* 2018, 10, 1038-1046.
53. Y. Chen, D. Montana, H. Wei, J. Cordero, M. Schneider, X. Le Guevel, **O. Chen**, O. T. Bruns and M. G. Bawendi\* “Shortwave Infrared *in vivo* Imaging with Gold Nanoclusters” *Nano Letters* 2017, 17, 6330-6334.
54. H. Zhu, Y. Nagaoka, K. Hills-Kimball, R. Tan, L. Yu, Y. Fang, K. Wang, R. Li, Z. Wang and **O. Chen\*** “Pressure-Enabled Synthesis of Hetero-Dimers and Hetero-Rods through Intraparticle Coalescence and Interparticle Fusion of QD-Au Satellite Nanocrystals” *J. Am. Chem. Soc.* 2017, 139, 8408-8411.
55. R. Tan, Y. Yuan, Y. Nagaoka, D. Eggert, K. Wang, P. Guo, J. Zhao and **O. Chen\*** “Monodisperse Hexagonal Pyramidal and Bipyramidal Wurtzite CdSe-CdS Core-Shell Nanocrystals” *Chemistry of Materials* 2017, 29, 4097-4108.
56. K. Hills-Kimball, Y. Nagaoka, C. Cao, E. Chaykovsky and **O. Chen\*** “Synthesis of Formamidinium Lead Halide Perovskite Nanocrystals through Solid-Liquid-Solid Cation Exchange” *Journal of Materials Chemistry C* 2017, 5, 5680-5684.
57. O. T. Bruns, T. Bischof, D. Harris, D. Franke, Y. Shi, L. Reidemann, A. Bartelt, F. Jaworski, J. Carr, C. Rowlands, M. Wilson, **O. Chen**, R. Jain\* and M. G. Bawendi\* “Next Generation *in vivo* Optical Imaging with Short-Wave Infrared Quantum Dots” *Nature Biomedical Engineering* 2017, 1, 0056.
58. Y. Nagaoka, K. Hills-Kimball, R. Tan, R. Li, Z. Wang and **O. Chen\*** “Nanocube Superlattices of Cesium Lead Bromide Perovskites and Pressure-Induced Phase Transformation at Atomic and Mesoscale Levels” *Advanced Materials* 2017, 29, 1606666.
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60. R. Tan, H. Zhu, C. Cao and **O. Chen\*** “Multi-Component Superstructures Self-Assembled from Nanocrystal Building Blocks” *Nanoscale* 2016, 8, 9944-9961.

61. D. Franke, D. Harris, **O. Chen**, O. T. Bruns, J. Carr, M. W. Wilson and M. G. Bawendi\* “Continuous Injection Synthesis of Indium Arsenide Quantum Dots for Short-Wavelength Infrared Imaging” *Nature Communications* 2016, 7, 12749
62. R. Li, J. Zhang, R. Tan, F. Gerdes, Z. Luo, H. Xu, J. A. Hollingsworth, C. Klinke, **O. Chen** and Z. Wang\* “Competing Interactions between Various Entropic Forces toward Assembly of Pt<sub>3</sub>Ni Octahedra into a Body-Centered Cubic Superlattice” *Nano Letters* 2016, 16, 2792-2799.

### **Publications prior to Brown**

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63. R. Jensen, I. Huang, **O. Chen**, J. Choy, T. Bischof, M. Loncar and M. G. Bawendi\* “Optical Trapping and Two-Photon Excitation of Colloidal Quantum Dots using Bowtie Apertures” *ACS Photonics* 2016, 3, 423-427.
64. J. Cui, A. P. Beyler, I. Coropceanu, L. Cleary, T. R. Avila, Y. Chen, J. M. Cordero, S. L. Heathcote, D. K. Harris, **O. Chen**, J. Cao and M. G. Bawendi\* “Evolution of the Single-Nanocrystal Photoluminescence Linewidth with Size and Shell: Implications for Exciton-Phonon Coupling and the Optimization of Spectral Linewidths” *Nano Letters* 2016, 16, 289-296.
65. S. Dey, Y. Zhou, X. Tian, J. A. Jenkins, **O. Chen**, S. Zou and J. Zhao\* “An Experimental and Theoretical Mechanistic Study of Biexciton Quantum Yield Enhancement in Single Quantum Dots Near Gold Nanoparticles” *Nanoscale* 2015, 7, 6851-6858.
66. P. D. Chowdary, D. L. Che, L. Kaplan, **O. Chen**, K. Pu, M. G. Bawendi\* and B. Cui\* “Nanoparticle-Assisted Optical Tethering of Endosomes Reveals the Cooperative Function of Dyneins in Retrograde Axonal Transport” *Scientific Reports* 2015, 5, 18059.
67. X. Zhang, A. Shamirian, A. M. Jawaid, Ch. M. Tyrakowshki, L. E. Page, A. Das, **O. Chen**, A. Isovich, A. Hassan and P. T. Snee\* “Monolayer Silane-Coated, Water-Soluble Quantum Dots” *Small* 2015, 45, 6091-6096.
68. M. Abolhasani, C. W. Coley, L. Xie, **O. Chen**, M. G. Bawendi\* and K. F. Jensen\* “Oscillatory Microprocessor for Growth and in Situ Characterization of Semiconductor Nanocrystals” *Chemistry of Materials* 2015, 27, 6131-6138
69. G. Satat, B. Heshmat, C. Barsi, D. Raviv, **O. Chen**, M. G. Bawendi and R. Raskar\* “Locating and Classifying Fluorescent Tags Behind Turbid Layers Non-Invasively Using Sparsity-Based Time-Resolved Inversion” *Nature Communications* 2015, 6, 6796.
70. **O. Chen**, L. Riedemann, F. Etoc, H. Herrmann, M. Coppey, M. Barch, C. T. Farrar, J. Zhao, O. Bruns, H. Wei, P. Guo, J. Cui, R. Jensen, Y. Chen, D. Harris, J. Cordero, Z. Wang, A. Jasanoff, D. Fukumura, R. Reimer, M. Dahan, R. Jain\* and M. G. Bawendi\* “Magneto-Fluorescent Core-Shell Supernanoparticles” *Nature Communications* 2014, 5, 5093.
71. **O. Chen**, H. Wei, A. Maurice, M. G. Bawendi\* and P. Reiss\* “Pure Colors from Core-Shell Quantum Dots” *MRS Bulletin* 2013, 38, 696-702.
72. J. Cui, A. Beyler, L. Marshall, **O. Chen**, D. Harris, D. Wanger, X. Brokmann and M. G. Bawendi\* “Direct Probe of Spectral Inhomogeneity Reveals Synthetic Tunability of Single-Nanocrystal Spectral Linewidths.” *Nature Chemistry* 2013, 5, 602-606.
73. **O. Chen**, J. Zhao, V. P. Chauhan, J. Cui, C. Wong, D. Harris, H. Wei, H. S. Han, D. Fukumura, R. K. Jain and M. G. Bawendi\* “Compact High-Quality CdSe-CdS Core-Shell Nanocrystals with Narrow Emission Linewidths and Suppressed Blinking” *Nature Materials* 2013, 12, 445-451.
74. H. Wei, O. Bruns, **O. Chen** and M. G. Bawendi\* “Compact Zwitterion-Coated Iron Oxide Nanoparticles for *in vitro* and *in vivo* Imaging” *Integr. Biol.* 2013, 5, 108-114.
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76. V. P. Chauhan, T. Stylianopoulos, J. D. Martin, Z. Popović, **O. Chen**, W. S. Kamoun, M. G. Bawendi, D. Fukumura and R. K. Jain\* “Normalization of Tumor Blood Vessels Improves the Delivery of Nanomedicines in A Size-Dependent Manner” *Nature Nanotechnology* 2012, 7, 383-388.
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82. **O. Chen**, D. Shelby, Y. Yang, J. Zhuang, T. Wang, C. Niu, N. Omenetto and Y. C. Cao\* “Excitation-Intensity-Dependent, Color-Tunable, Dual Emissions from Mn-Doped CdS/ZnS Core/Shell Nanocrystals” *Angew. Chem. Int. Ed.* 2010, 49, 10132-10135.
83. Z. Wang\*, **O. Chen**, Y. C. Cao, K. Finkelstein, D. Smilgies, X. Lu and W. A. Bassett “Integrating In-situ High Pressure Small and Wide Angle Synchrotron X-ray Scattering for Exploiting New Physics of Nanoparticle Supercrystals” *Rev. Sci. Instru.* 2010, 81, 093902-1-5.
84. **O. Chen**, J. Zhuang, F. Guzzetta, J. Lynch, A. Angerhofer and Y. C. Cao\* “Synthesis of Water-Soluble 2,2'-Diphenyl-1-Picrylhydrazyl Nanoparticles: A New Standard for Electron Paramagnetic Resonance Spectroscopy” *J. Am. Chem. Soc.* 2009, 131, 12542-12543.
85. J. Zhuang, A. Shaller, J. Lynch, H. Wu, **O. Chen**, A. D.Q. Li and Y. C. Cao\* “Cylindrical Superparticles from Semiconductor Nanorods” *J. Am. Chem. Soc.* 2009, 131(17), 6084-6085.
86. Y. Yang, **O. Chen**, A. Angerhofer and Y. C. Cao\* “Radio-Position-Controlled Doping of CdS/ZnS Core/Shell Nanocrystals: Surface Effects and Position-Dependent Properties” *Chem. Eur. J.* 2009, 15, 3186-3197.
87. **O. Chen**, X. Chen, Y. Yang, J. Lynch, H. Wu, J. Zhuang and Y. C. Cao\* “Synthesis of Metal-Selenide Nanocrystals Using Selenium Dioxide as the Selenium Precursor” *Angew. Chem. Int. Ed.* 2008, 47, 8638-8641. (Selected as a “*Very Important Paper*”)
88. Y. Yang, **O. Chen**, A. Angerhofer and Y. C. Cao\* “On Doping CdS/ZnS Core/Shell Nanocrystals with Mn” *J. Am. Chem. Soc.* 2008, 130 (46), 15649-15661.
89. Y. Yang, **O. Chen**, A. Angerhofer and Y. C. Cao “Radial-Position-Controlled Doping in CdS/ZnS Core/Shell Nanocrystals” *J. Am. Chem. Soc.* 2006, 128 (38), 12428-12429.
90. S. Yin, S. Wei\*, G. Xie, Q. Bian, J. Zhang, **O. Chen** and H. Yang “XAFS and XRD Studies on Structures of  $\text{Nd}_9\text{Fe}_{85-x}\text{Mn}_x\text{B}_6$  Nanocomposites” *Phys. Scr.* 2005, T115, 658-660.

## INVITED TALKS AND PRESENTATIONS

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1. Cornell University, Department of Materials Science and Engineering colloquium, Spring 2022, Ithaca, NY.
2. “Composition and Morphology Controls of Halide Perovskite Nanocrystals for Photocatalysis and Optoelectronic Applications” *The ACS National Meeting*, Mar. 2022, San Diego, CA

3. “Grain-Boundary Bulk Materials Created from Nanocrystals” *The ACS National Meeting*, Mar. 2022, San Diego, CA
4. “Composition Tuning and Crystal Phase Control of Lead-Free Halide Perovskite and Perovskite-Analogue Nanocrystals” *The Pacificchem International Meeting*, Dec. 2021, Honolulu, HI.
5. “Synthesis and Self-Assembly of Anisotropic Janus and Patchy Heterostructural Nanocrystals” *The Pacificchem International Meeting*, Dec. 2021, Honolulu, HI.
6. University of Oklahoma, Department of Chemistry & Biochemistry colloquium, Fall 2021, Norman, OK.
7. “Bulk Grain Boundary Materials from Metal Nanocrystals” *22<sup>nd</sup> American Conference of Crystal Growth and Epitaxy (ACCGE-22)*, Aug. 2021, virtual meeting.
8. “Perovskite Nanomaterials: Transition from Lead-Based to Lead-Free Systems” *The ACS National Meeting*, Aug. 2021, Atlanta, GA
9. “Tutorial of Quantum Dot Nanocrystal Materials: Synthesis, Assembly and Applications” *The MRS National Meeting*, Apr. 2021, virtual meeting.
10. “Introduction of Quantum Dot-Based Nanomaterials” *The 3M Non-Tenured Faculty Award Symposium*, Feb. 2021, virtual meeting.
11. “Assembly of Anisotropic Quantum Dots from Periodic Superlattices to Aperiodic Quasicrystals” Argonne National Laboratory, Center for Nanoscale Materials colloquium, Dec. 2020, Lemont, IL.
12. “Photonic Crystal Enhanced Photon Collection for Quantum Dot-based Luminescent Solar Concentrator” *The MRS National Meeting*, Dec. 2020, virtual meeting.
13. “High Performance Quantum Dot Materials” *The Global Technology Cooperation conference*, Oct. 2020, virtual meeting.
14. University of Central Florida, Nanoscience Technology Center colloquium, Fall 2020, Orlando, FL. (Postponed)
15. Florida State University, Department of Chemistry colloquium, Fall 2020, Tallahassee, FL. (Postponed)
16. University of Florida, Department of Chemistry colloquium, Fall 2020, Gainesville, FL. (Postponed to 2022)
17. University of Washington, Department of Chemistry colloquium, Jun. 2020, Seattle, WA. (Postponed)
18. “From Nanocrystals to Macromaterials through Assembly Processing” *The MRS National Meeting*, Apr. 2020, Phoenix, AZ.
19. “Self-Assembly of Anisotropic Nanocrystals from Periodic Superlattices to Aperiodic Quasicrystals” *The MRS National Meeting*, Dec. 2019, Boston, MA.
20. Boston University, Materials Science & Engineering seminar, Nov. 2019, Boston, MA.
21. University of Illinois Urbana-Champaign (UIUC), Department of Materials Science colloquium, Oct. 2019, Champaign, IL.
22. University of Massachusetts at Amherst, Department of Chemistry colloquium, Oct. 2019, Amherst, MA.
23. University of New Hampshire, Department of Materials Science colloquium, Oct. 2019, Durham, NH.
24. University of Massachusetts Dartmouth, Department of Chemistry colloquium, Oct. 2019, North Dartmouth, MA.
25. Wesleyan University, Department of Chemistry Colloquium, Sep. 2019, Middletown, CT.
26. “Self-Assembly of Anisotropic Nanocrystals from Periodic Superlattices to Aperiodic Quasicrystals” *The ACS National Meeting*, Aug. 2019, San Diego, CA.



27. "Self-Assembly of Anisotropic Nanocrystals from Periodic Superlattices to Aperiodic Quasicrystals" *The ACS National Meeting*, Aug. 2019, San Diego, CA.
28. "Self-Assembly of Anisotropic Nanocrystals" *Crystal Growth and Assembly, Gordon Research Conference*, Jun. 2019, Manchester, NH.
29. "Self-Assembly of Anisotropic Nanocrystals" *Materials Research Society Meeting*, Apr. 2019, Phoenix, AZ.
30. "Synthesis and Self-Assembly of Anisotropic 'Patchy' Nanocrystals" *The ACS National Meeting*, Apr. 2019, Orlando, FL.
31. "Applications of Advanced Optics and Nanotechnology in Gliomas" *Advanced CTR Lecture series*, Feb. 2019, Providence, RI.
32. "Self-Assembly of Anisotropic Nanocrystals from Translational Ordering to Atomic Precision", *University of Rhode Island, Department of Chemistry Colloquium*, Nov. 2018, South Kingston, RI.
33. "Self-Assembly of Anisotropic Nanocrystals and their Transformations under High Pressure" *The ACS National Meeting*, Aug. 2018, Boston, MA.
34. "Anisotropic Nanocrystals Superstructure Formation and Transformation: How Complex We Can Push To?" *2018 International Seminar on Advanced Materials Research*, Aug. 2018, Shanghai, China.
35. "Self-Assembly of QD-Au Hetero-Nanocrystals and Their Transformations under High Pressure" *The ACS National Meeting*, Mar. 2018, New Orleans, LA.
36. "Monodisperse Hexagonal Pyramidal and Bipyramidal Wurtzite CdSe-CdS Core-Shell Nanocrystals" *The ACS National Meeting*, Aug. 2017, Washington, DC.
37. "Anisotropic Nanocrystal Synthesis, Self-assembled Superstructures and Pressure-Induced Transformations" *The 43<sup>rd</sup> Boston Regional Inorganic Colloquium (BRIC) Meeting*, Jun. 2017, Storrs, CT.
38. "Nanocube Superlattice of Cesium Lead Bromide Perovskites and Pressure-Induced Phase Transformations" *The ACS National Meeting*, Apr. 2017, San Francisco, CA.
39. "Materials Design and Processing from Nano to Mesoscale using High-Energy X-Ray Probe", *Cornell High Energy Synchrotron Source (CHESS) center*, Jun. 2016, Ithaca, NY.
40. "Nanocrystal Quantum Dots: from Synthesis towards Applications", *Bridgewater State University*, Apr. 2016, Bridgewater, MA.
41. "Multicomponent Nanocrystal Superstructures", *MRS Meeting*, Apr. 2016, Phoenix, AZ.
42. "Self-Assembled Nanocrystals and Their Bio-Imaging Applications" *The ACS National Meeting*, Aug. 2015, Boston, MA.

### **Talks and Posters Prior to Brown**

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43. "Multifunctional Colloidal Supernanoparticles" *20 Years of Quantum Dots at Los Alamos*, Apr. 2015, Santa Fe, NM. (Best Poster Award)
44. "High Quality Nanomaterials: From Single Quantum Dot to The Superstructures" *University of Connecticut*, Aug. 2014, Storrs, CT.
45. "Multifunctional Colloidal Supernanoparticles" *Gordon Research Conference*, Jul. 2014, Smithfield, RI.
46. "Superstructures from Colloidal Nanocrystals" *Cornell High Energy Synchrotron Source (CHESS) center*, Jun. 2014, Ithaca, NY.
47. "Magneto-Fluorescence Core-Shell Supernanoparticles" *Oral presentation at the MRS Meeting*, Apr. 2014, San Francisco, CA.
48. "Nanomaterials for Biological Applications" *Oral presentation the ACS National Meeting*, Mar. 2014, Dallas, TX.

49. “High Quality Nanomaterials: From Single Quantum Dot to The Superstructures” *UCLA*, Jan. 2014, Los Angeles, CA.
50. “High Quality Nanomaterials: From Single Quantum Dot to The Superstructures” *University of Michigan*, Nov. 2013, Ann Arbor, MI.
51. “Quantum Dots with Combined Properties” *Oral presentation at the MRS meeting*, Apr. 2013, San Francisco, CA.
52. “Magnetic and Fluorescent Nanocrystals for Biological Applications” *Poster presentation at the MRS meeting*, Nov. 2012, Boston, MA.
53. “A New Generation of Core/Shell Quantum Dots” *Oral presentation the ACS National Meeting*, Aug. 2012, Philadelphia, PA.
54. “Synthesis of High-Quality Magneto-Fluorescent Multifunctional Nanoparticles” *Oral presentation at the ACS National Meeting*, Mar. 2012, San Diego, CA.
55. “Nanoparticle Size and Shape Series for *in vivo* Fluorescence Imaging” *Poster presentation at the ACS National Meeting*, Aug. 2011, Denver, CO.
56. “On Doping Core/Shell Nanocrystals with Mn” *Oral presentation at the MRS Meeting*, Dec. 2009, Boston, MA.
57. “Synthesis of Metal-Selenide Nanocrystals Using SeO<sub>2</sub> as the Selenium Precursor” *Oral presentation at the ACS National Meeting*, Aug. 2009, Washington, DC.
58. “Mn-Doping in CdS/ZnS Core/Shell Nanocrystals” *Oral presentation at the Pittsburgh Conference Meeting*, Mar. 2009, Chicago, IL.
59. “Radial-Position-Controlled Doping in CdS/ZnS Core/Shell Nanocrystals” *Oral presentation at the Particle Engineering Research Center’s Industrial Advisory Board (IAB) Meeting*, Apr. 2007, Gainesville, FL. Student Award.

## PATENTS

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1. **O. Chen** and Y. Nagaoka “A Novel Method to Fabricate Nanostructured Bulk Materials with Tailored Grain Boundary Conditions” Patent Application Submitted.
2. **O. Chen** and M. G. Bawendi “Semiconductor Nanocrystals” Patent: US20130240787A1
3. **O. Chen** and M. G. Bawendi “Multifunctional Nanoparticles” Patent: US20130259808A1
4. **O. Chen**, H. Wei, O. Bruns and M. G. Bawendi “Nanoparticles for Magnetic Resonance Imaging Applications” Patent: CA2961358A1
5. **O. Chen**, H. Wei, O. Bruns and M. G. Bawendi “Nanoparticles for Magnetic Particle Imaging Applications” Patent: US20160136307A1
6. **O. Chen** and Y. C. Cao “Synthesis of Water-Soluble Organic Nanoparticles as EPR Standard”, Patent: US20110031430A1
7. **O. Chen** and Y. C. Cao “Excitation-Intensity-Dependent, Color Tunable, Dual Emitting Nanocrystals”, Patent: US8410455B2
8. **O. Chen** and Y. C. Cao “One-Pot Synthesis of High-Quality Metal Chalcogenide Nanocrystals Without Precursor Injection”, Patent: US20090084307A1

## SERVICES AND OUTREACHES

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### To the department/university:

- International Students Affair Officer of Chemistry Department, 2020-present.
- Biochemistry Concentrator Advisor of Brown University, 2020-present.
- Served for *NSF CAREER Mock Review Panel* of Brown University, Providence, RI. Jun. 2020

- Panelist of the *NSF CAREER Award Workshop*. Providence, RI. Mar. 2020.
- Initiated and organized the Brown *STEM-Day* in Chemistry Department to attract under-representative high school students learn and study STEM. Providence RI, 2017-present.
- Representative for Chemistry Department of Brown University in the *National Society of Black Physicists (NSBP)* conference. Providence RI, Nov. 2019.
- Developed an undergraduate lab module for CHEM0500 and published the results in *Journal of Chemical Education* (2019, 96, 2300-2307), Aug. 2019.
- Faculty panelist on *SciToons: Behind the Scenes* event. Providence, RI, Mar. 2019.
- Faculty mentor of *Chemistry Departmental Undergraduate Group (ChemDUG)*, 2017-present.
- Faculty organizer of Chemistry Departmental inorganic seminar, 2016-present.
- Reviewer of Brown University *Salomon Award* applications, 2017 & 2018.
- PhD thesis committee member for 37 Brown graduate students, since 2015
- Member of Admission Committee of Chemistry Department, 2015-present.
- Member of Brown *Institute for Molecular and Nanoscale Innovation (IMNI)*, 2015-present.

**To the profession:**

- Served as a tutor for the symposium of “Building Advanced Materials by Self-Assembly”, *MRS National Meeting*. Seattle, WA, Apr. 2021, virtual meeting.
- Organized the symposium of “Functional Nanoparticle Materials-Synthesis, Property and Applications” in *MRS National Meeting*. Seattle, WA, Apr. 2021, virtual meeting.
- Co-organized the symposium of “Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations” in *ACS National Meeting*. San Francisco, CA, Aug. 2020, virtual meeting.
- Guest Editor for a special issue of “Near Infrared Luminescent Materials” in *iScience* (Cell Press), 2020-2021.
- Junior Editorial Board member of *InfoMat* (Wiley), since 2020.
- Organized and chaired the symposium of “Frontiers and Challenges in Nanoparticle-Mediated Chemical Transformations” in *ACS National Meeting*. San Diego, CA, Aug. 2019.
- Organized the symposium of “Colloidal Nanoparticles Synthesis & Assembly” in *ACS National Meeting*. Orlando, FL, Apr. 2019.
- Young Star Editor of *Nano Research*, since 2019.
- Guest editor of a special issue of “Semiconductor and Metal Nanocrystals” in *Frontier in Chemistry*. Mar. 2019.
- Co-organized *Boston Regional Inorganic Colloquium (BRIC)* meeting at Brown University. Providence, RI. Apr. 2018.
- Chaired 20+ symposium sessions for *Materials Research Society Meetings and ACS National Meetings*, 2015-2021.
- Member of the External Proposal Review Board for *DoE Center for Integrated Nanotechnologies (CINT)*, since 2018.
- Reviewer and panelist for *National Science Foundation* proposals, since 2018.
- Reviewer for *Department of Energy* proposals, since 2019.
- Reviewer for *ACS Petroleum Fund* proposals, since 2016.
- Reviewed more than 150 manuscripts for peer-reviewed journals including *Science*, *Nature*, *Nature Materials*, *Nature Communications*, *Science Advances*, *Chem*, *JACS*, *Angewandte Chemie*, *Advanced Materials*, *Nano Lett.*, *ACS Nano*, etc.
- External organizer of the CHESS workshop of “Materials Design and Processing from Nano to Mesoscale”, *Cornell University*, Ithaca, NY. Jun. 2016.
- Member of *Materials Research Society*, since 2009.

- Member of *American Chemical Society*, since 2008.

**To the community:**

- Demonstrating fluorescent quantum dot nanocrystals to local under-representative high school students, 2016-present.
- Collaborating with SciToons undergraduate groups to create a YouTube SciToons video for general public: *Functional Materials from Self-Assembly of Nanoparticles?* Mar. 2021.
- Facilitated and presented chemistry, nanoscience and nanotechnology to the general public during the “*Big Band Science Fair*” of providence water fire event. Providence, RI, Oct. 2019.
- Organized a workshop of quasicrystal materials with artists and professors in architectures, materials sciences, and chemistry at Brown University. Providence, RI, Apr. 2019.
- Served as a judge for Rhode Island Science and Engineering Fair (RISEF). Warwick, RI. Mar. 2018-2020.
- Speaker and teacher in *Vartan Gregorian Science Conference* to show the beauty of science to elementary schoolers. Providence, RI. Jun. 2018 and May 2019.
- Collaborated with SciToons undergraduate groups and created a YouTube SciToons video for general public: *Color by size: Quantum Dots*. Jun. 2018.