CURRICULUM VITAE

PERSONAL INFORMATION

Name:	Lim, Jaehoon
Citizenship:	Republic of Korea
Affiliation:	Department of Energy Science, Sungkyunkwan University
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EDUCATION

School of Chemical & Biological Engineering, Seoul National University

Mar. 2007 to Feb. 2013 Doctor of Philosophy
Shape Control of Semiconductor Nanocrystals and Their Applications to Optoelectronic Devices

School of Chemical & Biological Engineering, Seoul National University

Mar. 2003 to Feb. 2007 Bachelor of Science (cum laude)

EMPLOYMENT HISTORY

Jan. 2020 to Date	Assistant Professor Department of Energy Science Sungkyunkwan University, South Korea
Mar. 2018 to Dec. 2019	Assistant Professor Department of Chemical Engineering Ajou University, South Korea
May 2017 to Jan. 2018	Research Assistant Professor Center for High Technology Materials University of New Mexico, United States
Mar. 2014 to Apr 2017	Postdoctoral Research Fellow Los Alamos National Laboratory, United States
Mar. 2013 to Feb. 2014	Postdoctoral Research Fellow Inter-university Semiconductor Research Center Seoul National University, South Korea

AREA OF EXPERTISE & SKILLS

- Chemistry of II-VI, III-V, and IV-VI compound semiconductor nanocrystals (NCs)
  - Tailoring chemical composition, shape, and heterostructures
  - Correlating chemical and structural information with photophysical properties
  - Analyzing chemical information using HR-TEM, SEM, XRD, FT-IR, ^{1}H-NMR, *etc.*
- Optoelectronic devices based on NCs (*e.g.*, LEDs and PVs)
  - Correlating chemical and photophysical properties with device characteristics
  - Interactive design of device architecture and nanostructure of NCs for high performance devices
  - Experience on device fabrication facilities and characterization instruments

RESEARCH PROJECTS

- 중견연구 (수행중)
  - 2022.03 ~ 2027.02, 연 1.6억/년
  - 고성능 전무기 발광소자 제작 및 분석
- 삼성디스플레이 산학과제 (수행중)
  - 2022.03 ~ 2024.02, 연 0.7억/년
  - 양자점 전기발광소자의 홀전달층 개발
- 기초연구실 (수행중)
  - 2022.06 ~ 2025.02, 연 1.2억/년
  - 건식 공정 기반 양자점 발광소자 제작 및 패터닝 연구
- 미래소재디스커버리 (수행중)
  - 2019.07 ~ 2025.06 (연 0.8억/년)
  - 공유결합성 인공원자 합성 및 응용
- 삼성미래기술육성사업 (종료)
  - 2019.09 ~ 2021.08 (연 0.5억/년)
  - QD-LED 소자 성능 향상을 위한 소자 내의 electronic trap 분석 및 원인 규명
- 기본연구 (종료)
  - 2018.05 ~ 2019.04, 연 0.5억/년
  - 고출력 발광소자를 위한 양자점 나노구조체 연구
- 신진연구자사업 (종료)
  - 2019.03 ~ 2021.02 (연 0.98억/년)
  - 양자점-무기전하전달층 복합박막의 습식공정을 통한 전무기 양자점 발광소자 제작

PUBLICATIONS

- Publication statistics: 73 in total
  - 1st & corresponding author (underlined): 25
  - Co-author: 48
- Total citation: 6594 (Google Scholar, Jan 10, 2023)
- h-index: 34 (Google Scholar, Jan 10, 2023)
- ORCID ID: 0000-0003-2623-3550

1. Y. Choi, D. Hahm, W. K. Bae, **J. Lim***, "Heteroepitaxial chemistry of zinc chalcogenides on InP nanocrystals for defect-free interfaces with atomic uniformity", Nature Communications, **2023**, 14, 43.
2. T. Lee, B. J. Kim, H. Lee, D. Hahm, W. K. Bae, **J. Lim*** and J. Kwak*, "Bright and Stable Quantum Dot Light-Emitting Diodes", Advanced Materials, **2021,** 2106276.
3. H. Lee, B. G. Jeong, W. K. Bae, D. C. Lee* and **J. Lim***, "Surface State-induced Barrierless Carrier Injection in Quantum Dot Electroluminescent Devices", Nature Communications, **2021**, 12, 5669.
4. G.-H. Kim, J. Lee, J. Y. Lee, J. Han, Y. Choi, C. J. Kang, K.-B. Kim, W. Lee, **J. Lim**, S.-Y. Cho*, "High-Resolution Colloidal Quantum Dot Film Photolithography via Atomic Layer Deposition of ZnO", ACS Applied Materials & Interfaces, **2021**, 13(36), 43075–43084.
5. S. Rhee, J. H. Chang, D. Hahm, B. G. Jeong, J. Kim, H. Lee, **J. Lim**, E. Hwang, J. Kwak, W. K. Bae*, "Tailoring the Electronic Landscape of Quantum Dot Light-Emitting Diodes for High Brightness and Stable Operation", *ACS Nano*, **2020**, 14(12), 17496-17504.
6. C.-S. Jo, K. Noh, S. H. Noh, H. Yoo, Y. Kim, J. Jang, H. H. Lee, Y.-J. Jung, J.-H. Lee, J. Han, **J. Lim**, S.-Y. Cho*, "Solution-Processed Fabrication of Light-Emitting Diodes Using $CsPbBr_3$ Perovskite Nanocrystals", *ACS Applied Nano Materials*, **2020**, 11, 2874.
7. J. H. Hwang, **J. Kim**, B. J. Kim, M. Park, Y. W. Kwon, M. An, D. Y. Shin, J. M. Jeon, J. Y. Kim, W. Lee, J. Lim, D. Lee, "Hole Injection Of Quantum Dot Light-Emitting Diodes Facilitated By Multilayered Hole Transport Layer", *Applied Surface Science*, **2021**, 558 (30) 149944.
8. D. Lee, **J. Lim**, M. Park, C.-M. Kang, H. Lee, "Device Characteristics of Inverted Red Colloidal Quantum-Dot Light-Emitting Diodes Depending on Hole Transport Layers", *Science of Advanced Materials*, **2021**, 13(5), 917-921.
9. H. J. Yun, **J. Lim**, J. Roh, D. C. J. Neo, M. Law, V. I. Klimov*, "Solution-processable integrated CMOS circuits based on colloidal $CuInSe_2$ quantum dots", Nature

Communications, **2020**, 11, 1, 1-10.

10. J. Yang, D. Hahm, K. Kim, s. Rhee, M. Lee, S. Kim, J. H. Chang, H. W. Park, **J. Lim**, M. Lee, H. Kim, J. Bang, H. Ahn, J. .H. Cho, J. Kwak, B. S. Kim, C. Lee, W. K. Bae*, M. S. Kang*, "High-resolution patterning of colloidal quantum dots via non-destructive, light-driven ligand crosslinking", *Nature Communications*, **2020**, 11(1), 2874.
11. Kim, G.-H., Noh, K., Han, J., Kim, M., Oh, N., Lee, W., Na, H. B., Shin, C., Yoon, T.-S., **Lim, J.***, Cho, S.-Y.*, "Enhanced Brightness and Device Lifetime of Quantum Dot Light-Emitting Diodes by Atomic Layer Deposition", *Advanced Materials Interfaces*, **2020**, 7, 12, 2000343.
12. M. Park, J. Roh, **J. Lim**, H. Lee*, D. Lee*, "Double Metal Oxide Electron Transport Layers for Colloidal Quantum Dot Light-Emitting Diodes", *Nanomaterials*, **2020**, 10, 4, 726.
13. M. Park, J. Song, M. An, **J. Lim**, C. Lee, J. Roh*, D. Lee*, "Colloidal quantum dot light-emitting diodes employing solution-processable tin dioxide nanoparticles in an electron transport layer", *RSC Advances*, **2020**, 10, 14, 8261-8265.
14. M. Park, J. Song, H. Jung, M. An, **J. Lim**, C. Lee, J. Roh*, D. Lee*, "Improving Performance of Inverted Blue QD-LEDs by Adopting Organic/Inorganic Double Electron Transport Layer", *Physica Status. Solidi (RRL) - Rapid Research Letters*, **2020**, 1900737.
15. H. Lee, D.-E. Yoon, S. Koh, M. S. Kang, **J. Lim***, D. C. Lee*, "Ligands as a universal molecular toolkit in synthesis and assembly of semiconductor nanocrystals", *Chemical Science*, **2020**, 11, 9, 2318-2329.
16. J. Roh, Y.-S. Park, **J. Lim**, V. I. Klimov*, "Optically Pumped Colloidal-Quantum-Dot Lasing in LED-Like Devices with an Integrated Optical Cavity", *Nature Communications*, **2020**, 11:271.
17. S. Rhee, J. H. Chang, D. Hahm, K. Kim, B. G. Jeong, K. J. Lee, **J. Lim**, K. Char, C. Lee, W. K. Bae*, "A "Positive Incentive" Approach to Enhance Operational Stability of Quantum Dot based Light-Emitting Diode", *ACS Applied Materials and Interfaces*, **2019**, 11, 43, 40252-40259.
18. R. Singh, W. Liu, **J. Lim**, I. Robel, V. I. Klimov*, "Hot-electron Dynamics in Quantum Dots Manipulated by Spin-exchange Auger Interactions", *Nature Nanotechnology*, **2019**, 14, 1035-1041.
19. D. Lee, S. Koh, D.-E. Yoon, S. Lee, W. D. Kim, D. Kim, W. K. Bae, **J. Lim**, D. C. Lee*, "Synthesis of InP Nanocrystals Using Triphenyl Phosphite as Phosphorus Source",

Korean Journal of Chemical Engineering, **2019**, 36, 9, 1518-1526.

20. S. Lee, D.-E. Yoon, D. Kim, D. J. Shin, B. G. Jeong, D. Lee, **J. Lim**, W. K. Bae, H.-K. Lim, and D. C. Lee "Direct cation exchange of CdSe nanocrystals into ZnSe enabled by controlled binding between guest cations and organic ligands", *Nanoscale*, **2019**, 36, 9, 1518-1526.
21. K. Noh, M. Kim, S.-H. Lee, H.-S. Yun, T.-H. Lim, Y. Choi, K.-J. Kim, Y. Jiang, K. Beom, M. Kim, Y.-G. Kim, P. Lee, N. Oh, B. H. Kim, C. Shin, H. H. Lee, T.-S. Yoon, M. Shim, **J. Lim**, K.-B. Kim, S.-Y. Cho "Effect of ethanolamine passivation of ZnO nanoparticles in quantum dot light emitting diode structure", *Current Applied Physics*, **2019**, 19, 9, 998-1005.
22. D. Hahm, D. Ko, B. G. Jeong, S. Jeong, **J. Lim*,** W. K. Bae*, C. Lee, K. Char* "Environmentally benign nanocrystals: challenges and future directions", *Journal of Information Technology*, **2019**, 20:2, 61-72.
23. W. D. Kim, D. Kim, D.-E. Yoon, H. Lee, **J. Lim***, W. K. Bae*, D. C. Lee* "Pushing the Efficiency Envelope for Semiconductor Nanocrystal-Based Electroluminescence Devices Using Anisotropic Nanocrystals", *Chem. Mater.*, **2019**, 31, 9, 3066-3082.
24. D. Hahm, J. H. Chang, B. G. Jeong, P. Park, J. Kim, S. Lee, J. Choi, W. D. Kim, S. Rhee, **J. Lim**, D. C. Lee, C. Lee, K. Char*, W. K. Bae* "Design Principle for Bright, Robust, and Color-Pure InP/$ZnSe_xS_{1-x}$/ZnS Heterostructures", *Chem. Mater.*, **2019**, 31, 9, 3476-3484.
25. Y.-S. Park, **J. Lim**, V. I. Klimov*, "Asymmetrically strained quantum dots with non-fluctuating single-dot emission spectra and subthermal room-temperature linewidths" *Nature Materials*, **2019**, 18, 249-255.
26. W. K. Bae, **J. Lim***, "Nanostructured colloidal quantum dots for efficient electroluminescence devices" *Korean J. Chem. Eng.*, **2019**, 36(2), 173-185.
27. H. Lee, **J. Lim**, J. Song, H. Heo, K. An, J. Kim, S. Lee, K. Char, H.-J. Song, C. Lee, "CdSe tetrapod interfacial layer for improving electron extraction in planar hetero-junction perovskite solar cells" *Nanotechnology*, **2018**, 30 (6), 065401.
28. H. J. Yun, **J. Lim**, A. S. Fuhr, N. S. Makarov, S. Keene, M. Law, J. M. Pietryga, V. I. Klimov* "Charge-Transport Mechanisms in $CuInSe_xS_{2-x}$ Quantum-Dot Films" *ACS Nano*, **2018**, 12 (12), 12587-12596.
29. **J. Lim**, Y.-S. Park, K. Wu, H. J. Yun, V. I. Klimov*, "Droop-free Quantum Dot Light Emitting Diodes", *Nano Letters*, **2018**, 18 (10), 6645-6653.
30. I. Cho, H. Jung, B. K. Jeong, D. Hahm, J. H. Cang, T. Lee, K. Char, D. C. Lee, **J. Lim**,

C. Lee, J. Cho*, W. K. Bae* "Ligand-Asymmetric Janus Quantum Dots for Efficient Blue-Quantum Dot Light-Emitting Diodes", *ACS Appl. Mater. Interfaces*, **2018**, 10 (26), 22453-22459.

31. **J. Lim**, Y.-S. Park, V. I. Klimov* "Optical Gain in Colloidal Quantum Dots Achieved with Direct-Current Electrical Pumping", *Nature Materials,* **2017**, 3 (17), 42-49.
32. K. Wu, Y.-S. Park, **J. Lim**, V. I. Klimov* "Towards zero-threshold optical gain using charged semiconductor quantum dots", *Nature Nanotech.*, **2017**, 12, 1140-1147.
33. Y.-S. Park, **J. Lim**, N. Makarov, V. I. Klimov* "Effect of Interfacial Alloying versus "Volume Scaling" on Auger Recombination in Compositionally Graded Semiconductor Quantum Dots", *Nano Lett.*, **2017**, 17 (9), 5607–5613 **(co-first)**.
34. K. Wu, **J. Lim**, V. I. Klimov* "Superposition Principle in Auger Recombination of Charged and Neutral Multicarrier States in Semiconductor Quantum Dots", *ACS Nano*, **2017**, 11 (8), 8437–8447.
35. H. Heo, M. H. Lee, J. Yang, H. S. Wee, **J. Lim**, D. Hahm, J. W. Yu, W. K. Bae, W. B. Lee, M. S. Kang, K. Char "Assemblies of Colloidal CdSe Tetrapod Nanocrystals with Lengthy Arms for Flexible Thin-Film Transistors", *Nano Lett.*, **2017**, 17 (4), 2433-2439.
36. N. S. Makarov, **J. Lim**, Q. Lin, J. W. Lewellen, N. A. Moody, I. Robel, J. M. Pietryga "Quantum Dot Thin-Films as Rugged, High-Performance Photocathodes", *Nano Lett.*, **2017**, 17 (4), 2319-2327.
37. H. Lee, K. Wu, **J. Lim**, H.-J. Song, V. I. Klimov "Doctor-blade deposition of quantum dots onto standard window glass for low-loss large-area luminescent solar concentrators", *Nature Energy*, **2016**, *1*, 16157 (doi: 10.1038/nenergy.2016.157).
38. Y. Sung, **J. Lim**, J. H. Koh, B. K. Min, J. Pyun, K. Char "Arm length dependency of Pt-decorated CdSe tetrapods on the performance of photocatalytic hydrogen generation", *Korean J. Chem. Eng.*, **2016**, 33 (8), 2287-2290.
39. J. M. Pietryga, Y.-S Park, **J. Lim**, W. K. Bae, A. Fiedler, S. Brovelli, V. I. Klimov, "Spectroscopic and Device Aspects of Nanocrystal Quantum Dots", *Chem. Rev.*, **2016**, *116* (18), 10513-10622.
40. V. I. Klimov, T. Baker, **J. Lim**, V. Kirill, H. McDaniel, "Quality Factor of Luminescent Solar Concentrators and Practical Concentration Limits Attainable with Semiconductor Quantum Dots", *ACS Photonics,* **2016**, 3 (6) 1138-1148.
41. Y. Sung, **J. Lim**, J. H. Koh, L. J. Hill, B. K. Min, J. Pyun, K. Char "Uniform decoration of Pt nanoparticles on well-defined CdSe tetrapods and the effect of their Pt cluster size on photocatalytic H_2 generation", *Cryst. Eng. Comm.*, **2015**, 17, 8423-8427.

42. Y.-S. Park, W. K. Bae, T. Baker, **J. Lim**, V. I. Klimov, "Effect of Auger recombination on lasing in heterostructured quantum dots with engineered core/shell interfaces", *Nano Lett.* **2015**, 15 (11), 7319-7328.
43. C.-m. Kang, J. Wade, S. Yun, **J. Lim**, H. Cho, J. Roh, H. Lee, S. Nam, D. D. C. Bradley, J.-S. Kim, and C. Lee "1 GHz Pentacene Diode Rectifiers Enabled by Controlled Film Deposition on SAM-Treated Au Anodes", *Adv. Electron. Mater.*, **2015**, 2 (2), 1500282.
44. D. Lee, **J. Lim**, M. Park, J. Y. Kim, J. Song, J. Kwak, S. Lee, K. Char, and C. Lee "Influence of Sequential Ligand Exchange and Elimination on the Performance of P3HT:CdSe Quantum Dot Hybrid Solar Cells", *Nanotechnology*, **2015**, 26 (46), 465401 (co-first).
45. J. Song, **J. Lim**, D. Lee, M. Thambidurai, J. Y. Kim, M. Park, H.-J. Song, S. Lee, K. Char, and C. Lee "Nanostructured Electron-selective Interlayer for Efficient Inverted Organic Solar Cells", *ACS Appl. Mater. Interfaces,* **2015**, 7 (33) 18460-18466. (**co-first**)
46. C. Lee, M. Park, **J. Lim**, H. Jung, J. Kwak, W. K. Bae, K. Char, S. Lee "Invited Paper: Recent Progress of Light-Emitting Diodes Based on Colloidal Quantum Dots", *SID Int. Symp. Dig. Tec.*, **2015**, 1, 685-687.
47. J. Kwak, **J. Lim**, M. Park, S. Lee, K. Char, and C. Lee "High-power Genuine Ultraviolet Light-emitting Diodes Based on Colloidal Nanocrystal Quantum Dots", *Nano Lett.* **2015**, *15* (6), 3793-3799. (**co-first**)
48. H. Cho, J. Kwak, **J. Lim**, M. Park, D. Lee, W. K. Bae, Y. S. Kim, K. Char, S. Lee, and C. Lee "Soft Contact Transplanted Nanocrystal Quantum Dots for Light-emitting Diodes: Effect of Surface Energy on Device Performance", *ACS Appl. Mater. Interfaces*, **2015**, *7* (20), 10828-10833.
49. M. Park, S.-H. Jung, **J. Lim**, D.-Y. Kim, H.-J. Kim, S. Lee, H. Jung, S. Lee, C. Lee, and J.-K. Lee "Semiconductor Nanocrystals in Fluorous Liquids for the Construction of Light-emitting Diodes", *J. Mater. Chem. C*, **2015**, *3* (12), 2759-2762.
50. E. Usukura, S. Shinohara, K. Okamoto, **J. Lim**, K. Char and K. Tamada "Highly Confined, Enhanced Surface Fluorescence Imaging with Two-dimensional Silver Nanoparticle Sheets", *Appl. Phys. Lett.*, **2014**, *104*, 121906.
51. **J. Lim**, B. G. Jeong, M. Park, J. K. Kim, J. M Pietryga, Y.-S. Park, V. I Klimov, C. Lee, D. C Lee, and W. K. Bae "Influence of Shell Thickness on the Performance of Light-Emitting Devices Based on CdSe/$Zn_{1-X}Cd_XS$ Core/Shell Heterostructured Quantum Dots", *Adv. Mater.*, **2014**, *26* (47), 8034-8040.
52. **J. Lim**, L. zur Borg, S. Dolezel, F. Schmid, K. Char, and R. Zentel "Strategy for Good Dispersion of Well-Defined Tetrapods in Semiconducting Polymer Matrices",

Macromol. Rapid Comm., **2014**, *35* (19), 1685-1891.

53. W. K. Bae, **J. Lim**, D. G. Lee, M. Park, H. Lee, J. Kwak, K. Char, C. Lee, and S. Lee "R/G/B/Natural White Light Thin Colloidal Quantum Dot-Based Light-Emitting Devices", *Adv. Mater.,* **2014**, *26* (37), 6387-6393. (**co-first**)
54. W. K. Bae, **J. Lim**, M. Zorn, J. Kwak, Y.-S. Parh, D. Lee, S. Lee, K. Char, R. Zentel, and C. Lee "Reduced Efficiency Roll-Off in Light-Emitting Diodes Based on Quantum Dot-Conducting Polymer Hybrids", *J. Mater. Chem. C* **2014**, *2*, 4974-4979.
55. E. T. Kim, W. J. Chung, **J. Lim**, P. Johe, R. S. Glass, J. Pyun, and K. Char "One-pot Synthesis of PbS NP/Sulfur-Oleylamine Copolymer Nanocomposites *via* the Copolymerization of Elemental Sulfur with Oleylamine", *Polym. Chem.* **2014**, *5*, 3617-3623.
56. **J. Lim**, D. Lee, M. Park, J. Song, M. S. Kang, S. Lee, C. Lee, and K. Char, "Modular Fabrication of Hybrid Bulk Heterojunction Solar Cells Based on Breakwater-like CdSe Tetrapod Nanocrystal Network Infused with P3HT", *J. Phys. Chem. C,* **2014**, *118* (8), 3942-3952.
57. W. K. Bae, Y.-S. Park, **J. Lim**, D. Lee, L. A. Padilha, H. McDaniel, I. Robel, C. Lee, J. M. Pietryga, and V. I. Klimov, "Controlling the influence of Auger recombination on the performance of quantum-dot light-emitting diodes", *Nature Commun.*, **2013**, *4*, 2661. (doi:10.1038/ncomms3661) (**co-first**)
58. **J. Lim**, M. Park, W. K. Bae, D. Lee, S. Lee, C. Lee, and K. Char, "Highly Efficient Cadmium-Free Quantum Dot Light Emitting Diodes Enabled by the Direct Formation of Excitons within InP@ZnSeS Quantum Dots", *ACS Nano*, **2013**, *7* (10), 9019-9026.
59. L. zur Borg, D. Lee, **J. Lim**, W. K. Bae, M. Park, S. Lee, C. Lee, K. Char, and R. Zentel "The Effect of Band Gap Alignment on the Hole Transport from Semiconducting Block Copolymers to Quantum Dots", *J. Mater. Chem. C* **2013,** *1*, 1722-1726. (**co-first**)
60. H. Woo, **J. Lim**, Y. Lee, J. Sung, H. Shin, J. M. Oh, M. Choi, H. Yoon, W. K. Bae, and K. Char "Robust, Processable, and Bright Quantum Dot/Organosilicate Hybrid Films with Uniform QD Distribution Based on Thiol-containing Organosilicate Ligands", *J. Mater. Chem. C* **2013,** *1*, 1983-1989**.**
61. **J. Lim**, W. K. Bae, G. U. Park, R. Zentel, K. Char, and S. Lee "Controlled Synthesis of CdSe Tetrapods with High Morphological Uniformity by the Persistent Kinetic Growth and the Halide-Mediated Phase" *Chem. Mater.* **2013**, *25(8)*, 1443-1449.
62. Y. Cho, **J. Lim**, and K. Char "Layer-by-layer assembled stimuli-responsive nanoporous membranes" *Soft Matter* **2012**, *8*, 10271-10278.

63. **J. Lim**, W. K. Bae, J. Kwak, S. Lee, C. Lee, and K. Char, "Perspective on Synthesis, Device Structures, and Printing Processes for Quantum Dot Displays" *Opt. Mat. Express* **2012**, *2(5)*, 594-628.
64. S. H. Sung, H. Yoon, **J. Lim**, and K. Char "Reusable Stamps for Printing Sub-100 nm Patterns of Functional Nanoparticles" *Small* **2012**, *8*, 826-831.
65. J. Kwak, W. K. Bae, D. Lee, I. Park, **J. Lim**, M. Park, H. Cho, H. Woo, Do Y. Yoon, K. Char, S. Lee, and C. Lee, "Bright and Efficient Colloidal Quantum Dot based Light-Emitting Diodes with inverted structure" *Nano Lett.* **2012**, *12 (5)*, 2362–2366.
66. H. Yoon, M. K. Kwak, S. M. Kim, S. H. Sung, **J. Lim**, H. S. Suh, K. Y. Suh, and K. Char "Polymeric Nanopillars Reinforced with Metallic Shells in the Lower Stem Region", *Small* **2011**, *7*, 3005-3010.
67. **J. Lim,** W. K. Bae, D. Lee, M. K. Nam, J. Jung, C. Lee, K. Char and S. Lee "InP@ZnSeS, Core@Composition Gradient Shell Quantum Dots with Enhanced Stability" *Chem. Mater.* **2011**, *23*, 4459-4463.
68. W. K. Bae, J. Kwak, **J. Lim**, D. Lee, M. K. Nam, S. Lee, C. Lee and K. Char "Multicolored Light-Emitting Diodes Based on All-Quantum Dot Multilayer Films Using Layer-by-Layer Assembly Method" *Nano Lett.* **2010**, *10*, 2368-2373.
69. M. Lee, W. Park, C. Chung, **J. Lim**, S. Kwon, K. H. Ahn, S. J. Lee, and K. Char, "Multilayer Deposition on Patterned Posts Using Alternating Polyelectrolyte Droplets in a Microfluidic Device" *Lab Chip* **2010**, *10*, 1160-1166.
70. W. K. Bae, J. Kwak, M. Zorn, H. Woo, H. Yoon, **J. Lim**, S. W. Kang, S. Weber, H. Butt, R. Zentel, S. Lee, K. Char and C. Lee "Characterization of Quantum Dot/Conducting Polymer Hybrid Films and Their Application to Light-Emitting Diodes" *Adv. Mater.* **2009**, *21*, 48, 5022-5026.
71. W. K. Bae, J. Kwak, **J. Lim**, D. Lee, M. K. Nam, K. Char, C. Lee and S. Lee "Deep Blue Light-Emitting Diodes Based on $Cd_{1-x}Zn_xS$@ZnS Quantum Dots" *Nanotechnology* **2009**, *20*, 7, 075202.

INTERNATIONAL CONFERENCES

1. **J. Lim** "Surface State-induced Energy Landscape Enabling Barrierless Hole Injection in QD EL Devices", MCARE 2022 (**2022**) – oral presentation
2. **J. Lim**, Y.-S. Park, K. Wu, H. J. Yun, V. I. Klimov " Droop-free operation of quantum dot light emitting diodes up to 100,000 nit", *The 18th International Meeting on*

Information Display, Busan, South Korea (**2018**) – oral presentation.

3. **J. Lim**, Y.-S. Park, K. Wu, H. J. Yun, V. I. Klimov, "High-brightness, "droop-free" quantum dot light emitting diodes", *Material Research Society Fall Meeting*, Boston, United States (**2017**) – oral presentation.
4. **J. Lim**, Y.-S. Park, V. I. Klimov, " Population inversion in electrically pumped colloidal quantum dots with a continuously graded layer", *Material Research Society Spring Meeting*, Phoenix, United States (2017) – oral presentation.
5. **J. Lim**, Y.-S. Park, J. M. Pietryga, V. I. Klimov, "Tuning of optical properties of thick shell quantum dots", *The 9th International Conference on Quantum Dots*, Jeju, South Korea (**2016**) – oral presentation.
6. **J. Lim**, Y.-S. Park, J. M. Pietryga, V. I. Klimov, "Influence of the Structure of the Core/Shell Interface on Auger Recombination in Colloidal Quantum Dots", *Material Research Society Spring Meeting*, Phoenix, United States (2016) – oral presentation.
7. C. Lee, **J. Lim**, and W. K. Bae, "Efficient Full-Color Colloidal Quantum Dot Light-Emitting Diodes Using an Inverted Device Structure", *Solid State and Organic Lighting (SOLED)*, Tucson, United States (**2013**) – oral presentation, invited.
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