

# CURRICULUM VITAE

## Prof. Il-Kyu Park

Department of Materials Science and Engineering, Seoul National University of Science and Technology, 232 Gongneung-ro, Nowon-gu, Seoul, Republic of Korea

Tel +82-2-970-6349

e-mail : [pik@seoultech.ac.kr](mailto:pik@seoultech.ac.kr)

<https://scholar.google.com/citations?user=JoQ7aalAAAAJ&hl=en>

<https://sites.google.com/view/kkyulab/home>



### Education

**Ph. D.** Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST), Gwangju, Korea (2003. 03 ~ 2008. 02)

(Thesis Title: “*Growth of III-nitride semiconductor nanostructures and application to light-emitting diodes*”)

Advisor: Prof. Seong-Ju Park

**M.S.** Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST), Gwangju, Korea (2001. 03 ~ 2003. 02)

(Thesis Title: “*Synthesis and characterization of silicon quantum dots via wet synthetic chemistry*”)

Advisor: Prof. Seonghoon Lee (Recent affiliation: Seoul National University)

**B.S.** Materials Science and Engineering, Chungbuk National University, Cheongju, Korea (1996. 03 ~ 2000. 02)

### Professional Experiences

2015. 09 ~ present     Professor, Department of Materials Science and Engineering, Seoul National University of Science and Technology, Seoul, Korea

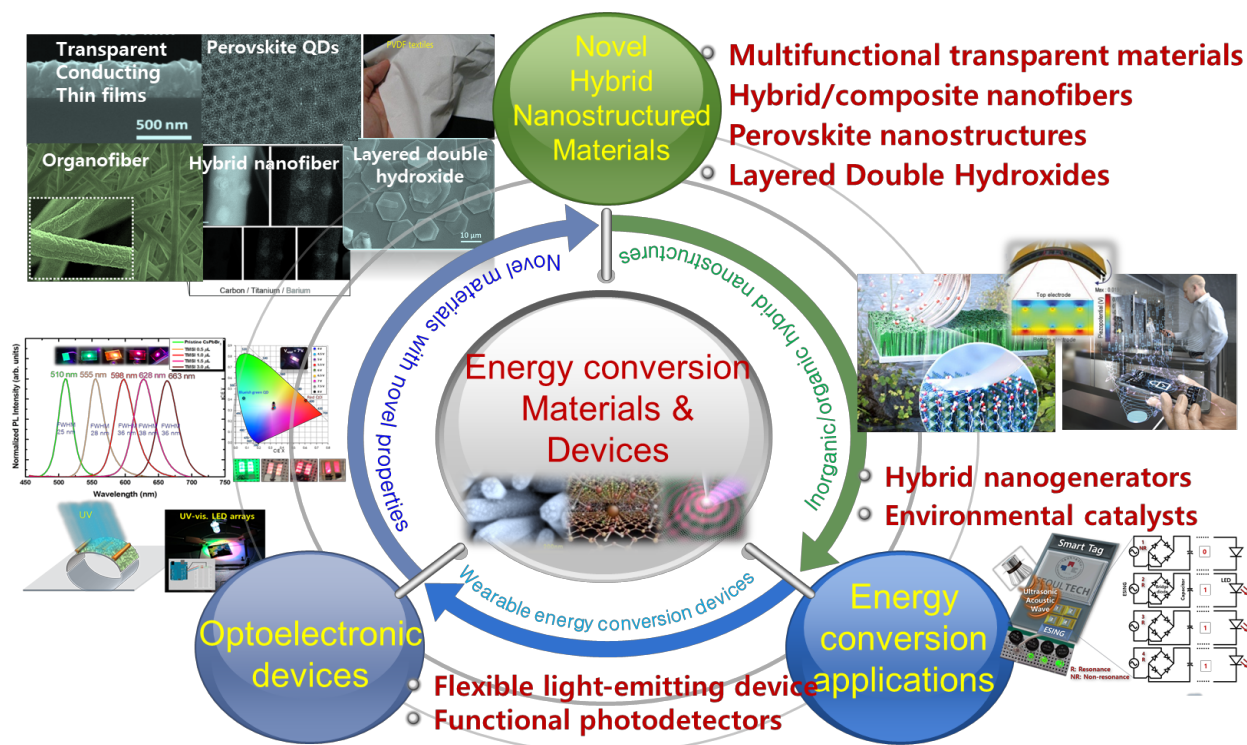
2009. 03 ~ 2015. 08     Assistant and Associate Professor, Department of Electronic Engineering, Yeungnam University, Daegu, Korea

2008.03~2009.02 Postdoctoral Research Fellow (Advisor: Prof. Manijeh Razeghi), Center for Quantum Devices, Department of Electrical Engineering & Computer Science, Northwestern University, Evanston, IL, “Growth and fabrication of III-V quantum structures for high performance infrared optoelectronic devices by metal-organic chemical vapor deposition” & “Design and fabrication of high quality anti-reflective and highly reflective dielectric thin films for optoelectronic devices by ion beam-assisted sputtering deposition”

2000.02~2000.10

Research associate at the development center for nuclear cladding materials  
in Korea Atomic Energy Research Institute (KAERI), Daejeon, Korea

### Current research interest



### Summary of Professional Activities/Service

- Guest editor of Applied Surface Science
- Editor of the Korean Journal of Materials Research Society
- Editor of Journal of Korean Powder Metallurgy
- Member of Materials Research Society
- More than 60 contributed/invited presentations at technical conferences
- 3 book chapters of books, 30 Korean patents and 3 PCT

### Publication list

133. Sang-Hyun Sohn, Geon-Ju Choi, Ba-Da On, and Il-Kyu Park\*, Synergistic Coupling of Tribovoltaic and Moisture-Enabled Electricity Generation in Layered-Double Hydroxides, Advanced Energy Materials, 2304206 (2024) (Selected as an issue Cover!)

132. Sang-Seok Lee, Woo-Jin Lee, Kisu Lee and Il-Kyu Park\*, Enhanced dopant incorporation into SnO<sub>2</sub> thin films based on dual source spray pyrolysis deposition process, Applied Surface Science, 646, 158881 (2024. 02. 15)

131. Chang-Xu Li, Seung-Bum Cho, Sang-Hyun Sohn, and Il-Kyu Park\*, Pinhole-Free CsCu<sub>2</sub>I<sub>3</sub> Thin Films by I<sub>2</sub>-Modification for Solar-blind Ultraviolet Photodetector and Application to Free-space Optical Communication, *Journal of Alloys and Compounds*, 973, 172925 (2024. 02. 05)
130. Sang-Seok Lee, and Il-Kyu Park\*, Simultaneous enhancement of electromagnetic interference shielding and infrared transmittance based on SnO<sub>2</sub> thin films, *Journal of Korean Physical Society* (2024.01.03)
129. Do-Hyun Kwak, Seung-Beom Cho, Chang-Xu Li, Dong-Hwan Kim, and Il-Kyu Park\*, Mild oxygen plasma-treated nickel oxides for performance enhancement of hybrid perovskite light-emitting diodes, *Vacuum*, 219, Part A, 112713 (2024. 01)
128. Sang-Hyun Sohn, Geon-Ju Choi, and Il-Kyu Park\*, Metal-organic Frameworks-induced Self-Poling Effect of Polyvinylidene Fluoride Nanofibers for Performance Enhancement of Triboelectric Nanogenerator, *Chemical Engineering Journal*, 475, 145860 (2023. 11. 01)
127. Woo-Jin Lee, Sang-Seok Lee, Sang-Hyun Sohn, Yuna Choi, and Il-Kyu Park\*, Persistent photoconductivity control in Zn-doped SnO<sub>2</sub> thin films for performance enhancement of solar-blind ultraviolet photodetector, *ACS Photonics*, 10(11), 3901-3914 (2023. 10. 31)
126. Yuna Choi, Sang-Seok Lee, Woo-Jin Lee, and Il-Kyu Park\*, Zn-doping induced phase control mechanism of Ga<sub>2</sub>O<sub>3</sub> thin films by spray pyrolysis deposition for application of solar-blind ultraviolet photodetector, *Materials Today Chemistry*, 33, 101738 (2023.11)
125. Geon-Ju Choi, Sang-Hyun Sohn, and Il-Kyu Park\*, Electrostatic Induction Nanogenerator Boosted by One-Dimensional Metastructure: Application to Energy and Information Transmitting Smart Tag System, *Advanced Science*, 2205141 (2023) (Selected as an issue Cover!)
124. Anil Kumar, Mohan Reddy Pallavolu, and Il-Kyu Park\*, Interface engineering for enhancing the performance of novel Mo-assistance nickel sulfide nanorods decorated with Ni-Co nanoparticles for a high-performance asymmetric supercapacitor, *Korean Journal of Chemical Engineering*, 40, 2847-2854 (2023)
123. Dong-Hwan Kim, Seung-Bum Cho, Chang-Xu Li, and Il-Kyu Park\*, Low temperatures modification of the p-CuI thin films via a fast trimethylsilyl iodide treatment, *Thin Solid Films*, 782, 140029 (2023.08.23)

122. Jae-Hyeok Oh, Seung-Bum Cho, Il-Kyu Park, Sung-Nam Lee\*, Monolithic multicolor emissions of InGaN-based hybrid light-emitting diodes using CsPbBr<sub>3</sub> green quantum dots, *Materials*, 16, 1290 (2023. 02. 02 )
121. Puran Pandey, Dae-Hwan Jung, Geon-Ju Cho, Min-Kyu Seo, Sanghyo Lee, Jong Min Kim, Il-Kyu Park\*, and Jung Inn Sohn\*, Nafion-Mediated Barium Titanate-Polymer Composite Nanofibers-Based Triboelectric Nanogenerator for Self-Powered Smart Street and Home Control System, *Nano Energy*, 107, 108134 (2023)
120. Sang-Seok Lee, Woo-Jin Lee, Yuna Choi, and Il-Kyu Park\*, Enhanced infrared transmittance by modulation of electrical and optical properties of Sm-doped SnO<sub>2</sub> thin films, *Applied Surface Science*, 614, 156105 (2023)
119. Sang-Seok Lee, Wook Ki Jung, Kisu Lee, and Il-Kyu Park\*, Modulation of Electrical and Optical Properties of Doping Controlled SnO<sub>2</sub> Thin Film Double Layers, *Journal of Korean Physical Society*, doi.org/10.1007/s40042-022-00650-4 (2022)
118. Chang-Xu Li, Seung-Bum Cho, Dong-Hwan Kim, Il-Kyu Park\*, Monodisperse Lead-Free Perovskite Cs<sub>3</sub>Cu<sub>2</sub>I<sub>5</sub> Nanocrystals: Role of Metal Halide Additive, *Chemistry of Materials* 34, 6921-6932 (2022)
117. Ba-Da On, Geon-Ju Choi, Sang-Seok Lee, and Il-Kyu Park\*, Rollable Ultraviolet Photodetector based on ZnAl-Layered Double Hydroxide/Polyvinylidene Fluoride Membrane, *Advanced Materials Interfaces* 9(24) 2201052 (2022)
116. Seung-Beom Cho<sup>†</sup>, Hye-Yun Seong<sup>†</sup>, and Il-Kyu Park\*, Resistive Switching Random Access Memory Based on Sn-incorporated Cs(Pb<sub>1-x</sub>Sn<sub>x</sub>)Br<sub>3</sub> Perovskite Thin Films, *Journal of Ceramic Processing Research* 23 (5) 672-67 (2022)
115. Ho-Young Kim, Seung-Beom Cho, Bo Hou, and Il-Kyu Park\*, Silver thiocyanate treatment-induced enhancement of photoluminescence efficiency of CsPbBr<sub>3</sub> perovskite quantum dots, *Journal of Korean Physical Society* 81, 150-157 (2022)
114. Dong-Jun Sim, Geon-Ju Choi, Sang-Hyun Sohn, and Il-Kyu Park \*, Electronegative polyvinylidene fluoride/C60 composite nanofibers for performance enhancement of triboelectric nanogenerators, *Journal of Alloys and Compounds*, 898, 2022, 162805 doi.org/10.1016/j.jallcom.2021.162805
113. Geon-Hyeong Kang and Il-Kyu Park\*, Reconstruction and intercalating anion exchange of ZnAl-layered double hydroxide, *Ceramics International*, 48 (3), 3030-3036 (2022)

112. Joon-Bum Cho, Seung-Bum Cho, and Il-Kyu Park\*, Performance enhancement of CsPbBr<sub>3</sub> thin film-based light-emitting diodes by CsF-induced surface modification, *Journal of Alloys and Compounds*, 891, 2022, 161996.
111. Seung-Bum Cho, Jin-Woo Jung, Yoon Seok Kim, Chang-Hee Cho, Il-Kyu Park\*, Emission wavelength control of CsPb (Br<sub>1-x</sub>Cl<sub>x</sub>)<sub>3</sub> nanocrystals for blue light-emitting diode applications, *CrystEngComm* 23 (14), 2021, 2746-2755
110. Geon-Ju Choi, Seong-Ho Baek, Il-Kyu Park\*, Synergetic Enhancement of Triboelectric Nanogenerators' Performance Based on Patterned Membranes Fabricated by Phase-Inversion Process, *physica status solidi (a)*, 218(10), 2021, 2000829 (Selected as an issue Cover!)
109. Prakash Ramakrishnan, Keon Beom Lee, Geon-Ju Choi, Il-Kyu Park\*, Jung Inn Sohn, Porous hollow nanorod structured chromium-substituted inverse spinel compound: An efficient oxygen evolution reaction catalyst, *Journal of Industrial and Engineering Chemistry*, 101(25), 2021, 178-185.
108. Seung-Bum Cho, Jung Inn Sohn, Sang-Seok Lee, Seung-Gyun Moon, Bo Hou, Il-Kyu Park\*, Colour-encoded electroluminescent white light-emitting diodes enabled using perovskite–Cu–In–S quantum composites, *Journal of Materials Chemistry C*, 9, 2021, 7027-7034. (Selected as an issue Cover!)
107. Haein Cho, Chan-Woo Jeon, Ba Da On, Il-Kyu Park, Sanghyeon Choi, Jingon Jang, Gunuk Wang, Transparent and Unipolar Nonvolatile Memory Using 2D Vertically Stacked Layered Double Hydroxide, *Advanced Materials Interfaces*, (2021) 2001990.
106. Sang-Seok Lee, Injoon Jang, Jong-Soo Rhyee, Soon-Jik Hong, Sung Jong Yoo, Il-Kyu Park\*, Enhanced thermoelectric performance of Mo nanoparticle decorated n-type Bi<sub>2</sub>Te<sub>2.7</sub>Se<sub>0.3</sub> powder composites, *Applied Surface Science*, 548, 2021, 149200.
105. Chan-Woo Jeon, Sang-Seok Lee, Il-Kyu Park\*, Abnormal temperature-dependent electrical conduction in ZnAl-layered double hydroxide nanostructures, *Applied Surface Science* 538, 2021, 148122.
104. Seung-Gyun Moon, Seung-Bum Cho, Kyoung-Kook Kim, Il-Kyu Park\*, Mixed halide CsPb(Br<sub>1-x</sub>I<sub>x</sub>)<sub>3</sub> nanocrystals for green, orange, and red light-emitting diodes, *Journal of Alloys and Compounds* 858, 2021, 157643.
103. Seong-Ho Baek, Young-Min Jeong, Dong Yeon Kim, Il-Kyu Park\*, Phase transformation of NiCo hydroxides derived from carbonate anion and its effect on electrochemical pseudocapacitor performance, *Chemical Engineering Journal* 393 (2020) 124713
102. Tae-Hoon Kong, Sang-Seok Lee, Geon-Ju Choi, and Il-Kyu Park\*, Churros-like Polyvinylidene Fluoride Nanofibers for Output Performance of Triboelectric Nanogenerators, *ACS Appl. Mater. Interfaces* 2020, 12, 17824–17832

101. Benxuan Li, Mingxia Lu, Jiangtao Feng, Jingchao Zhang, Peter M. Smowton, Jung Inn Sohn, Il-Kyu Park,\* Haizheng Zhong\* and Bo Hou, Colloidal quantum dot hybrids: an emerging class of materials for ambient lighting, *Journal of Materials Chemistry C*, 2020, 8, 10676
100. Jeong Seok Park, Sang Seok Lee, Il-Kyu Park\*, Visible and IR transparent Co-doped SnO<sub>2</sub> thin films with efficient electromagnetic shielding performance, *Journal of Alloys and Compounds* 815 (2020) 152480
99. Jeong-Seok Park, Do-yeon Kim, Woo-Byoung Kim, Il-Kyu Park\*, Realization of Eu-doped p-SnO<sub>2</sub> thin film by spray pyrolysis deposition, *Ceramics International* 46 (2020) 430–434.
98. Haein Cho, Chan-Woo Jeon, Sanghyeon Choi, Il-Kyu Park, Jingon Jang, Gunuk Wang, Unipolar and Transparent Nonvolatile Memory By Two-Dimensional Vertically Stacked Layered Double Hydroxide, *PRiME 2020*
97. Sang-Seok Lee, Chan-Woo Jeon, Il-Kyu Park\*, Bias-dependent optical and ion incorporation properties of CoAl-layered double hydroxides, *Applied Surface Science* 513 (2020) 145845
96. Il-Kyu Park, ang-Seok Lee, Yong Kyoong Mok, Chan-Woo Jeon, Hyun-Gil Kim, Dynamic Charge Carrier Transport Behaviors in Zirconium Oxide for Nuclear Cladding Materials, *Arch. Metall. Mater.* 65 (2020), 3, 1063-1067
95. Geon-Ju Choi and Il-Kyu Park\*, Recent Development in Performance Enhancement of PVDF-Nanopowder Composite-based Energy Harvesting Devices, *J. Korean Powder Metall. Inst.*, 27(3) 2020, 247-255.
94. GM Banna, Hasan UI, Il-Kyu Park, ZnO nanorods-based piezoelectric nanogenerators on double-sided conducting paper, *Journal of Ceramic Processing Research*, 21, 2020, 656-661
93. Chan-Woo Jeon, Sang-Seok Lee, and Il-Kyu Park, Visible-Blind Ultraviolet Photodetectors Based on ZnAl-Layered Double Hydroxide Nanosheet Scroll, *ACS Appl. Mater. Interfaces* 2019, 11, 35138–35145
92. Sunghwan Jo, Jin-Woo Jung, Jaeyoung Baik, Jang-Won Kang, Il-Kyu Park, Tae-Sung Bae, Hee-Suk Chung and Chang-Hee Cho, Surface-diffusion-limited growth of atomically thin WS<sub>2</sub> crystals from core–shell nuclei, *Nanoscale*, 2019, 11, 8706–8714
91. Geon-Ju Choi, Seong-Ho Baek, Sang-Seok Lee, Firoz Khan, Jae Hyun Kim, Il-Kyu Park , Performance enhancement of triboelectric nanogenerators based on polyvinylidene fluoride/graphene quantum dot composite nanofibers, *Journal of Alloys and Compounds*, 797, 2019, 945-951.

90. Chan-Woo Jeon, Sang-Seok Lee, Il-Kyu Park, Structural evolution of NiAl-based layered nanostructures grown by a low-temperature hydrothermal method, *Applied Surface Science* 473 (2019) 65–69
89. Ji-Eun Lee, Jin-Ho Yoon, Chan-Gi Lee, Ji-Hwan Park, Il-Kyu Park\*, Hydridation and oxidation behaviors of tantalum hydride during milling process, *International Journal of Refractory Metals & Hard Materials*, 79 (2019) 90–94
88. Sang-Seok Lee and Il-Kyu Park, Color manipulation of silica aerogel by copper incorporation during sol-gel process, *Journal of Ceramic Processing Research*. 20(1) 2019, 30-34
87. In-Sub Han, Ji-Soo Park and Il-Kyu Park, Modifications of structural and optical properties of copper oxide thin films by thermal annealing, *Journal of Ceramic Processing Research*. 20(6) 2019, 660-664
86. Ji-Su Im and Il-Kyu Park\*, Mechanically robust magnetic Fe<sub>3</sub>O<sub>4</sub> nanoparticle/PVDF composite nanofibers and its application in a Triboelectric Nanogenerator, *ACS Applied Materials & Interfaces*, 10, 25660-25665 (2018)
85. Jae Jin Sim, Sang Hoon Choi, Ji Hwan Park, Il Kyu Park, Jae Hong Lim, and Kyoung Tae Park, Pre-treatments of initial materials for controlling synthesized TaC characteristics in the SHS process, *J. Korean Powder Metall. Inst.*, 25, 251-256 (2018).
84. Jeong Seok Park and Il-Kyu Park\*, Performance modulation of contact electrification nanogenerators by controlling the doping concentration of fluorine-doped tin oxide, *Ceramics International*, 44 (11), 12477-12482 (2018)
83. Jang, A-Rang, Young-Woo Lee, Sang-Seok Lee, John Hong, Juwon Lee, Hyeon Suk Shin, Seong-Ho Baek, Sangyeon Pak, Docheon Ahn, Woong-Ki Hong, Seung Nam Cha, Jung Inn Sohn\*, Il-Kyu Park\*\*, "Boron-mediated electrochemical properties of graphene by a low-temperature spin-on dopant process" *Journal of Materials Chemistry A*, 6, 7354-7356 (2018) (Selected as an issue Cover!)
82. Hong-Seok Kim and Il-Kyu Park\*, "Enhanced output power of electrospun Eu-doped PVDF nanofiber based triboelectric nanogenerators" *Journal of Physics and Chemistry of Solids*, 117, 188 (2018).
81. Deok-Ki Cho and Il-Kyu Park\*, "Evolution of structural and chemical properties of CoAl-based-layered double hydroxide grown on silicon substrate" *Ceramics International* 44, 8556 (2018).

80. Deok-Ki Cho, Chan-Woo Jeon, and Il-Kyu Park\*, "Growth and optical band gap of CdAl-layered double hydroxide thin structures on rigid substrate" *Journal of Alloys and Compounds* 737, 725-730 (2018)
79. Il-Kyu Park\*, "ZnO/Si hetero-structured nanotrees fabricated by all-solution process" *Materials Letters* 210, 333-336 (2018)
78. In Sub Han and Il-Kyu Park\*, "Effect of Li-incorporation on the properties of ZnO thin films deposited by ultrasonic-assisted spray pyrolysis deposition method" *Kor. J. Mater. Res.* 28, 101 (2018)
77. Ji-Eun Lee, Jin-Ho Yoon, Chan-Gi Lee, Ji-Hwan Park, and Il-Kyu Park\*, "Enhanced tantalum hydride formation by a catalytic effect of tungsten for the hydrogen dissociation" *Sci. Adv. Mater.* 9, 2173-2177 (2017)
76. Il-Kyu Park\*, "Potassium incorporation-induced modification of electrical properties of ZnO nanorods and its application to piezoelectric nanogenerators" *J. Ceramic Processing Research* 18, 671 (2017)
75. In Sub Han and Il-Kyu Park\*, "Leidenfrost effect on the growth of ZnO nanostructures by spray hydrolysis deposition methods" *Kor. J. Mater. Res.* 27, 609 (2017)
74. Seong-Ho Baek and Il-Kyu Park\*, "Controlled synthesis of ZnO nanorods and layered double hydroxide composites using a composition-controlled seed layer" *J. Ceramic Processing Research*, 18, 584 (2017)
73. C. H. Cho, J. W. Kang, I. K. Park, and S. J. Park, "Enhanced quantum confinement in tensile-strained silicon nanocrystals embedded in silicon nitride", *Current Applied Physics*, 17, 1616-1621 (2017)
72. Kyung-Kook Kim and Il-Kyu Park\*, "Enhancement of visible light emission from Tb-doped ZnO nanorods grown on silicon" *J. Ceramic Processing Research*, 18, 435 (2017)
71. In Sub Han and Il-Kyu Park\*, "Spray pyrolysis deposition of Zinc oxide thin films by ZnO buffer layer" *Kor. J. Mater. Res.* 27, 403 (2017)
70. G M Ul Banna and Il-Kyu Park\*, "Flexible ZnO Nanorod-based Piezoelectric Nanogenerators on Carbon Papers" *Nanotechnology* 28, 445402 (2017)
69. Deok-Ki Cho, Sang-Seok Lee, Ji-Soo Lim, Seong-Ho Baek, and Il-Kyu Park\*, "Variation of emission and chemical properties of Eu-doped ZnAl layered-double hydroxide nanostructure" *Ceramics International*, 43 (13), 9686 (2017)



68. Il-Kyu Park\*, "Fabrication of porous polytetrafluoroethylene thin film from powder dispersion-solution for energy nanogenerator applications" J. Korean Powder Metall. Inst., Vol. 24(2), 102 (2017)
67. Seong-Ho Baek and Il-Kyu Park\*, "Flexible Piezoelectric Nanogenerators based on transferred ZnO nanorod/Si micro-pillar array" Nanotechnology 28, 095401 (2017)
66. Kyoung-Tae Park, Ji-Hwan Park, Jin-Ho Yoon, Ji-Eun Lee, Il-Kyu Park\*, "Temperature-dependent Ta hydride formation for recycling of Ta scraps: Experimental and thermodynamic investigations", Int. Journal of Refractory Metals and Hard Materials, 65, 83 (2017)
65. Seong-Ho Baek, Md Roqibul Hasan, and Il-Kyu Park\*, "Output Power Enhancement from ZnO Nanorods Piezoelectric Nanogenerators by Si Microhole Array" Nanotechnology 27, 065401 (2016)
64. D. Y. Sin and Il-Kyu Park\* , "Enhanced electrochemical performance of phosphorus incorporated carbon nanofibers by the spin-on dopant method", RSC Advances, 6, 58823 (2016)
63. Min YoungLee, Soo-HyunKim, Il-KyuPark\*, "Cu<sub>2</sub>O quantum dots emitting visible light grown by atomic layer deposition" Physica B 500, 4 (2016)
62. Il-Kyu Park\*, "Morphology Control of ZnO Nanostructures by Surfactants During Hydrothermal Growth", J. Korean Powder Metall. Inst., Vol. 23, No. 4, 270-275, (2016)
61. Shaivalini Singha, Il-Kyu Parkb and Si-Hyun Park, "Influence of Al doping on structural and optical properties of hydrothermally grown ZnO nanorods" Journal of Ceramic Processing Research. Vol. 17, No. 3, pp. 218~222 (2016)
60. Seong-Ho Baek, Kwang-Hee Nam, and Il-Kyu Park\*, "Morphological evolution of ZnAl-layered double hydroxide nanostructures grown on Al<sub>2</sub>O<sub>3</sub>/Si substrate" Sci. Adv. Mater. 8, 2142 (2016)
59. Sang Hyun Lee, Il-Kyu Park, and Jae Kyun Kwon, "Convex Optimization Approach to Multi-Level Modulation for Dimmable Visible Light Communications under LED Efficiency Droop" Journal of the Optical Society of Korea 20, 29-35 (2016)
58. S. Singh, G. R. Dillip, S. Vyas, Md. R. Hasan, I. K. Park, P. Chakrabarti, S. H. Park, " Fabrication and characterization of hydrothermally grown MgZnO nanorod films for Schottky diode applications" Microsystem Technologies online publication 2015. 11. 23 (2016)

57. Seong-Ho Baek and Il-Kyu Park\*, "Fabrication of ZnO nanorod/Polystyrene nanosphere hybrid nanostructures by hydrothermal method for energy generation applications", J. Korean Powder Metall. Inst., 22, 391 (2016)
56. Yuljae Cho, Jong Bae Park, Byung-Sung Kim, Juwon Lee, Woong-Ki Hong, Il-Kyu Park, Jae Eun Jang, Jung Inn Sohn, SeungNam Cha, Jong Min Kim "Enhanced energy harvesting based on surface morphology engineering of P(VDF-TrFE) film" Nano Energy, 16, 524-532 (2015)
55. Md R. Hasan, Seong-Ho Baek, Gwang-Su Sung, Jae Hyun Kim and Il-Kyu Park, "Hierarchical ZnO nanorods on Si Micro-pillar Arrays for performance Enhancement of Piezoelectric Nanogenerators" ACS Appl. Mater. Interfaces 7, 5768–5774 (2015).
54. Seong-Ho Baek, Gwang-Hee Nam and Il-Kyu Park "Morphology controlled growth of ZnAl-layered double hydroxide and ZnO nanorod hybrid nanostructures by solution method" RSC Advances, 5, 59823-59829 (2015)
53. Da-Yang Jung, Seong-Ho Baek and Il-Kyu Park, "Performance-enhanced ZnO nanorod-based piezoelectric nanogenerators on double-sided stainless steel foil" Journal of Alloys and Compounds, 641, 163-169 (2015)
52. Gwang-Hee Nam and Il-Kyu Park, "CdSe Quantum Dot-Conducting Polymer Hybrid Structure for Phosphor-free White Light-Emitting Diode" Journal of the Korean Physical Society, 66, 785-789 (2015)
51. Jung Inn Sohn, Seung Nam Cha and Jong Min Kim, Seong-Ho Baek, Jae Hyun Kim, Jae Eun Jang, Yong-Il Jung and Il-Kyu Park, "Modification of Electrical and Piezoelectric Properties of ZnO Nanorods based on Arsenic Incorporation via Low Temperature Spin-on-Dopant Method", Journal of the Korean Physical Society, Vol. 67, No. 5, (2015)
50. Seong-Ho Baek and Il-Kyu Park, "Fabrication of ZnO Nanorod based Robust Nanogenerator Metal Substrate", J. Korean Powder Metall. Inst., 22, 331-336 (2015)
49. Gwang-Hee Nam, Seong-Ho Baek, Chang-Hee Cho, and Il-Kyu Park, "Flexible and transparent graphene-ZnO nanorod hybrid structure fabricated by exfoliating graphite substrate" Nanoscale, 6, 11653 (2014)
47. Bum-Young Noh, Yoon-Seok Kim, and Il-Kyu Park, "Light-Emission from CdSe Quantum Dot and ZnO Nanorod Hybrids Structures", Journal of the Korean Physical Society 65, 74 (2014)

46. Gwang-Hee Nam, Seong-Ho Baek, and Il-Kyu Park, "Growth of ZnO nanorods on graphite substrate and its application for Schottky diode" *Journal of Alloys and Compounds*, 613, 37 (2014)
44. Yong-Il Jung, Seong-Ho Baek, Il-Kyu Park, "Controllable deposition of cadmium oxide and hydroxide nanostructures on silicon using a hydrothermal method" *Journal of Alloys and Compounds*, 595, 46 (2014).
43. Jung Inn Sohn, Yong-Il Jung, Seong-Ho Baek, SeungNam Cha, Jae Eun Jang, Chang-Hee Cho, Jae Hyun Kim, Jong Min Kim and Il-Kyu Park, "A low temperature process for phosphorous doped ZnO nanorods via a combination of hydrothermal and spin-on dopant methods" *Nanoscale*, 6, 2046 (2014)
41. Yong-Il Jung, Seong-Ho Baek, and Il-Kyu Park, "Growth of Eu-doped ZnO nanorods on Silicon substrate by low temperature hydrothermal method" *Thin Solid Films*, 546, 259 (2013)
40. Seong-Ho Baek, Jung-Soo Park, Yong-Il Jung, Il-Kyu Park, and Jae Hyun Kim, "Fabrication and Characterization of Hybrid Si/ZnO Subwavelength Structures as Efficient Antireflection Layer ", *Journal of Nanoscience and Nanotechnology* 13, 6359 (2013)
39. Il-Kyu Park and Seong-Ju Park, "Control of growth mode of  $\text{In}_{0.43}\text{Ga}_{0.57}\text{N}$  on GaN by  $\text{SiH}_4$  post-treatment", *Journal of the Korean Physical Society* 62, 1264 (2013).
38. Bum-Young Noh, Seong-Ho Baek, Jae Hyun Kim, and Il-Kyu Park, "Surface Plasmon-Enhanced Light-Emission Mechanism of Ag-Coated ZnO/ $\text{Al}_2\text{O}_3$  Core/Shell Nanorod Structures" *Journal of Nanoscience and Nanotechnology* 13, 3335 (2013)
37. Young-Seok Lee, Sung-Nam Lee, and Il-Kyu Park, "Growth of ZnO hemispheres on Silicon by hydrothermal method" *Ceramics International* 39, 3043 (2013)
36. J. Y. Kim, Il-Kyu Park, S. J. Park, and M. K. Kwon, "Enhanced efficiency of Green LED by Low-temperature Annealing of p-GaN with Pd", *Journal of Photonic Science and Technology*, 2, 14 (2012)
35. Il-Kyu Park, Min-Ki Kwon, and Seong-Ju Park, "A Comparison of the Recombination Efficiency in Green-emitting InGaN Quantum Dots and Quantum Wells", *Journal of the Korean Physical Society*, 60, 1666 (2012).
34. Yong-Il Jung, Bum-Young Noh, Young-Seok Lee, Seong-Ho Baek, Jae Hyun Kim and Il-Kyu Park, "Visible emission from Ce-doped ZnO nanorods grown by hydrothermal method without a post thermal annealing process", *Nanoscale Research Letters*, 7, 43 (2012).

33. Jeong-Ho Park, Jeong-Woo Park, Il-Kyu Park, and Dong-Yu Kim, "Enhanced Optical Power of GaN-Based Light-Emitting Diode with Nanopatterned p-GaN by Simple Light Coupling Mask Lithography", *Applied Physics Express*, 5, 022101 (2012).
32. Seong-Ho Baek, Bum-Young Noh, Il-Kyu Park and Jae Hyun Kim, "Fabrication and characterization of silicon wire solar cells having ZnO nanorod antireflection coating on Al-doped ZnO seed layer", *Nanoscale Research Letters*, 7, 29 (2012).
31. Young-Seok Lee, Yong-Il Jung, Bum-Young Noh, and Il-Kyu Park, "Emission Pattern Control of GaN-Based Light-Emitting Diodes with ZnO Nanostructures", *Applied Physics Express*, 4, 112101 (2011)
30. Chu-Young Cho, Min-Ki Kwon, Il-Kyu Park, Sang-Hyun Hong, Jae-Joon Kim, Seong-Eun Park, Sung-Tae Kim, and Seong-Ju Park, "High-efficiency light-emitting diode with air voids embedded in lateral epitaxially overgrown GaN using a metal mask", *OPTICS EXPRESS*, 19 A943 (2011)
29. Il-Kyu Park and Seong-Ju Park, "Green Gap spectral range light emitting diodes using InGaN quantum dots", *Appl. Phys. Express* 4 (2011). This paper has been selected as an issue cover of the journal.
28. Se-Min Kim, Young-Bu Moon, Il-Kyu Park, and Ja-Soon Jang, "Degradation mechanism of light-emitting diodes on patterned sapphire substrate", *Phys. Stat. Sol. (a)* 207, 1414 (2010).
27. Il-Kyu Park, and Seong-Ju Park, "Height-controlled InGaN quantum dots and LED applications", *J. Korean Phys. Soc.* 56, 1828 (2010).
26. Il-Kyu Park, Seong-Ju Park, and Chel-Jong Choi, "Growth of height-controlled InGaN quantum dots on GaN", *Journal of Crystal Growth* 312, 2065 (2010).
25. S. Tsao, T. Yamanaka, S. Abdollahi Pour, Il-Kyu Park, B. Movaghar and M. Razeghi, "Quantum dot in a well infrared photodetectors for high operating temperature focal plane arrays", *SPIE Proceedings*, San Jose, CA Volume 7234-0V- January 25, 2009
24. Tae-Young Park, Chang-Hee Cho, Il-Kyu Park, and Seong-Ju Park, "Improved Leakage Current, Output Power, and Electrostatic Discharge Characteristics of GaN LEDs by Chemical Etching", *Electrochem. Solid-State Lett.* 12 D3 (2009).
23. Chu-Young Cho, Il-Kyu Park, Min-Ki Kwon, Ja-Yeon Kim, Seong-Ju Park, Dong-Ryul Jung, and Kwang-Woo Kwon, "InGaN/GaN multiple quantum wells grown on microfacets for white-light generation", *Appl. Phys. Lett.* 93, 241109 (2008).

22. Il-Kyu Park, Min-Ki Kwon, Chu-Young Cho, Ja-Yeon Kim, Chang-Hee Cho, and Seong-Ju Park, "Effect of InGaN quantum dot size on the recombination process in light-emitting diodes" Appl. Phys. Lett. 92, 253105 (2008). This article was selected in Virtual Journal of Nanoscale Science and Technology, Volume 18, Issue 1, 2008.
21. Chu-young Cho, Il-Kyu Park, Min-Ki Kwon, Ja-Yeon Kim, Seong-Ju Park, Dong Ryul Jung, and Kwang Woo Kwon, "Phosphor-free white light-emitting diode using InGaN/GaN multiple quantum wells grown on microfacets", Proc. SPIE 7058, 70580N (2008).
20. Tae-Young Park, Chang-Hee Cho, Il-Kyu Park, and Seong-Ju Park, "Improvement of leakage current and optical properties of GaN-based LEDs by chemical etching of p-GaN", Proc. SPIE 7058, 70580W (2008).
19. Min-Ki Kwon, Ja-Yeon Kim, Il-Kyu Park, Ki Seok Kim, Gun-Young Jung, Je Won Kim, Yong-Chun Kim, Seong-Ju Park, "Enhanced emission efficiency of GaN/InGaN multiple quantum well light-emitting diode with an embedded photonic crystal", Appl. Phys. Lett. 92, 251110 (2008).
18. Ja-Yeon Kim, Min-Ki Kwon, Il-Kyu Park, Chu Young Cho, Dong-Min Jeon, Je Won Kim, Yong-Chun Kim, and Seong-Ju Park, "Enhanced light extraction efficiency in flip-chip GaN light-emitting diodes with diffuse Ag reflector on nanotextured indium-tin oxide", Appl. Phys. Lett. 93, 021121 (2008).
17. Il-Kyu Park, Ja-Yeon Kim, Min-Ki Kwon, Chu-Young Cho, Jae-Hong Lim, and Seong-Ju Park, "Phosphor-free white light-emitting diode with laterally distributed multiple quantum wells", Appl. Phys. Lett. 92, 091110 (2008). This article was introduced at Photonics Spectra as LED Focus, May 2008 and at Compound Semiconductor as Technology Research Review, Volume 14, Number 4, 2008.
16. Min-Ki Kwon, Ja-Yeon Kim, Baek-Hyun Kim, Il-Kyu Park, Chu-Young Cho, Chisu Byeon, and Seong-Ju Park, "Surface plasmon-enhanced light-emitting diode", Advanced Materials, 20, 1253 (2008). This article was introduced at Nature Photonics as Research Highlight, Volume 2, Issue 5, 2008.
15. Il-Kyu Park, Min-Ki Kwon, Jeom-Oh Kim, Seong-Bum Seo, Ja-Yeon Kim, Jae-Hong Lim, Seong-Ju Park, and Yoon-Seok Kim, "Green light-emitting diodes with self-assembled In-rich InGaN quantum dots", Appl. Phys. Lett. 91, 133105 (2007).
14. Min-Ki Kwon, Il-Kyu Park, Ja-Yeon Kim, Jeom-Oh Kim, Seong-Ju Park, and Bongjin Kim, "Gradient doping of Mg in p-type GaN for high efficiency InGaN/GaN ultraviolet light-emitting diode", IEEE Photonic Tech. Lett. 19, 1180, (2007).

13. Min-Ki Kwon, Il-Kyu Park, Ja-Yeon Kim, Jeom-Oh Kim, Seong-Bum Seo, Seong-Ju Park, Keongik Min, and Gil-Han Park, "Optical properties of a Si delta-doped InGaN/GaN quantum well with ultra-violet emission", J. Appl. Phys. 102, 73115 (2007).
12. Il-Kyu Park, Min-Ki Kwon, Seong-Bum Seo, Ja-Yeon Kim, Jae-Hong Lim, and Seong-Ju Park, "Ultraviolet light-emitting diodes with self-assembled InGaN quantum dots", Appl. Phys. Lett. 90, 111116 (2007). This article was selected in Virtual Journal of Nanoscale Science and Technology, Volume 15, Issue 13, 2007.
11. Woong-Ki Hong, Dae-Kue Hwang, Il-Kyu Park, Gunho Jo, Sunghoon Song, Seong-Ju Park, Takhee Lee, Bong-Joong Kim, and Eric A. Stach "Realization of highly reproducible ZnO nanowire field effect transistors with n-channel depletion and enhancement modes", Appl. Phys. Lett. 90, 243103 (2007). This article was selected in Virtual Journal of Nanoscale Science and Technology, Volume 15, Issue 25, 2007.
10. Jae-Hong Lim, Chang-Ku Kang, Kyoung-Kook Kim, Il-Kyu Park, Dae-Kue Hwang, and Seong-Ju Park, "UV electroluminescence emission from ZnO light-emitting diodes grown by high temperature RF-sputtering", Advanced Materials, 18, 2720 (2006).
9. Sung-Ho Baek, Jeom-Oh Kim, Min-Ki Kwon, Il-Kyu Park, Seok-In Na, Ja-Yeon Kim, Bongjin Kim, and Seong-Ju Park, "Enhanced carrier confinement in AlInGaN-InGaN quantum wells in near ultraviolet light-emitting diodes", IEEE Photonic Tech. Lett. 18, 1276, (2006).
8. Ja-Yeon Kim, Seok-In Na, Ga-Young Ha, Min-Ki Kwon, Il-Kyu Park, Jae-Hong Lim, Seong-Ju Park, Min-Ho Kim, Dongyoul Choi, and Kyeongik Min, "Thermally stable and highly reflective AgAl alloy for enhancing light extraction efficiency in GaN light-emitting diodes", Appl. Phys. Lett. 88, 043507 (2006).
7. Min-Suk Oh, Min-Ki Kwon, Il-Kyu Park, Sung-Ho Baek, and Seong-Ju Park, "Improvement of a green LED by growing p-GaN on In<sub>0.25</sub>GaN/GaN MQWs at low temperature", J. Crystal Growth 289, 107 (2006).
6. Sang-Hyun Choi, Hongju Song, Il Kyu Park, Jun-Ho Yum, Seok-Soon Kim, Seonghoon Lee, and Yung-Eun Sung, "Synthesis of size-controlled CdSe quantum dots and characterization of CdSe-conjugated polymer blends for hybrid solar cells", J. Photochemistry and Photobiology A: Chemistry 179, 135 (2006).
5. Min-Ki Kwon, Il-Kyu Park, Sung-Ho Baek, Ja-Yeon Kim, and Seong-Ju Park, "Si delta-doping in GaN barrier layer of InGaN/GaN multi-quantum well for efficient ultraviolet light-emitting

diode", J. Appl. Phys. 97, 106109 (2005). This article was selected in Virtual Journal of Nanoscale Science and Technology, Volume 11, Issue 20, 2005.

4. Min-Ki Kwon, Il-Kyu Park, Sung-Ho Baek, Ja-Yeon Kim, and Seong-Ju Park, "Improvement of photoluminescence by Si delta-doping in GaN barrier layer of GaN/In<sub>x</sub>Ga<sub>1-x</sub>N multi-quantum wells", Phys. Stat. Sol.(a) 202(5), 859 (2005).

3. Jae-Hong Lim, Dae-Kue Hwang, Min-Ki Kwon, Il-Kyu Park, Seok-In Na, and Seong-Ju Park, "Highly transparent ZnO spreading layer for GaN based LED" Phys. Stat. Sol.(c) 2 (7), 2533 (2005).

2. Il-Kyu Park, Min-Ki Kwon, Sung-Ho Baek, Young-Woo Ok, Tae-Yeon Seong, Yoon-Seok Kim, Yong-Tae Moon, Dong-Joon Kim, and Seong-Ju Park, "Enhancement of phase separation in the InGa<sub>N</sub> layer for self-assembled In-rich quantum dots", Appl. Phys. Lett. 87, 061906 (2005). This article was selected in Virtual Journal of Nanoscale Science and Technology, Volume 12, Issue 7, 2005.

1. Il-Kyu Park, Yoon-Seok Kim, Min-Ki Kwon, Sung-Ho Baek, Ja-Yeon Kim, Seok-In Na, and Seong-Ju Park, "Surface roughness induced phase-separation in InGa<sub>N</sub> and LED applications", Phys. Stat. Sol.(c) 2 (7), 2887, (2005).