

Dr. Sang-Il Choi

Assistant Professor

Department of Chemistry and Green-Nano
Materials Research Center
Kyungpook National University
80 Daehak-ro, Buk-gu, Daegu, 41566, Korea

Tel: +82-53-950-7369
Email: sichoi@knu.ac.kr

EDUCATION BACKGROUND

Ph.D. in Inorganic Chemistry (2005–2011)
KAIST, Daejeon, Korea; Advisor: Prof. Joon T. Park

B.S. in Chemistry (2001–2005)
Sungkyunkwan University, Suwon, Gyunggi, Korea

WORKING EXPERIENCE

- 09/2012–02/2015 Post-doctoral research fellow, Georgia Institute of Technology, Atlanta, GA, USA; Advisor: Prof. Younan Xia
02/2011–08/2012 Post-doctoral research fellow, KAIST, Daejeon, Korea; Advisor: Prof. Sang Woo Han

RESEARCH INTERESTS

Synthesis of Colloidal Nanocrystals

- Design and synthesis of novel metal nanocrystals with well-controlled sizes, shapes, and core-shell structures
- Structure-dependent physical and chemical properties of faceted nanocrystals
- Synthesis and characterization of metal and metal oxides nanocrystals

Applications of Nanomaterials

- Nanomaterials for polymer electrolyte membrane fuel cell reactions, including O₂ reduction, H₂ oxidation, and oxidation of liquid fuels such as formic acid, methanol, and ethanol
- Nanomaterials for electrocatalytic water splitting reactions such as H₂ and O₂ evolution
- Nanomaterials for a Li-O₂ battery reaction
- Nanomaterials for transparent conducting oxides electrodes

PUBLICATIONS

1. Joo, J.;[†] Kim, T.;[†] Lee, J.;[†] **Choi, S.-I.*** and Lee, K.* "Morphology-Controlled Metal Sulfides and Phosphides for Electrochemical Water Splitting," *Adv. Mater.* **2019**, *31*, 1806682.
2. Park, J.;[†] Kim, H. J.;[†] Oh, A.; Kwon, T.; Baik, H.; **Choi, S.-I.*** and Lee, K.* "RuO_x-decorated Multimetallic Hetero-nanocage as Highly Efficient Electrocatalyst toward the Methanol Oxidation Reaction," *Nanoscale* **2018**, *10*, 21178-21185.

3. Chaudhari, N. K.; Joo, J.; Kim, B.; Ruqia, B.; **Choi, S.-I.*** and Lee, K.* "Recent Advances in Electrocatalysts towards the Oxygen Reduction Reaction: A Case of PtNi Octahedron," *Nanoscale* **2018**, *10*, 20073-20088.
4. Song, K.; Jung, J.; Park, M.; Park, H.; Kim, H.-J.; **Choi, S.-I.**; Yang, J.; Kang, K.; Han, Y.-K. and Kang, Y.-M.* "Anisotropic Surface Modulation of Pt Catalysts for Highly Reversible Li-O₂ Batteries: High Index Facet as a Critical Descriptor," *ACS Catal.* **2018**, *8*, 9006-9015.
5. Kwon, N.; Jeong, Y. U.*; **Choi, S.-I.**; Kim, S. Y. and Lee, Y. J. "The Effects of Surface Modifications on the Electrochemical Properties of LiMn_{2-x}Ni_xO₄ (0 ≤ x ≤ 0.5) as Cathode Materials for Secondary Lithium Batteries," *Bull. Korean Chem. Soc.* **2018**, *39*, 946-950.
6. Ruqia, B. and **Choi, S.-I.*** "Pt and Pt-Ni(OH)₂ Electrodes for the Hydrogen Evolution Reaction in Alkaline Electrolytes and Their Nanoscaled Electrocatalysts," *ChemSusChem* **2018**, *11*, 2643-2653.
7. Kwon, H.;† Kabiraz, M. K.;† Park, J.;† Oh, A.; Baik, H.; **Choi, S.-I.*** and Lee, K.* "Dendrite-embedded Pt-Ni Multiframes as Highly Active and Durable Electrocatalysts towards the Oxygen Reduction Reaction," *Nano Lett.* **2018**, *18*, 2930-2936.
8. Kim, B.;† Oh, A.;† Kabiraz, M. K.;† Hong, Y.; Joo, J.; Baik, H.; **Choi, S.-I.*** and Lee, K.* "NiOOH Exfoliation-free Nickel Octahedra as Highly Active and Durable Electrocatalysts toward the Oxygen Evolution Reaction in an Alkaline Electrolyte," *ACS Appl. Mater. Interfaces* **2018**, *10*, 10115-10122.
9. Lee, S.-U.; Jung, H.; Wi, D. H.; Hong, J. W.; Sung, J.; **Choi, S.-I.** and Han, S. W.* "Metal-Semiconductor Yolk-Shell Heteronanostructures for Plasmon-Enhanced Photocatalytic Hydrogen Evolution," *J. Mater. Chem. A* **2018**, *6*, 4068-4078.
10. Park, J.;† Kabiraz, M. K.;† Kwon, H.;† Park, S.; Baik, H.; **Choi, S.-I.*** and Lee, K.* "Radially Phase Segregated PtCu@PtCuNi Dendrite@Frame Nanocatalyst for the Oxygen Reduction Reaction," *ACS Nano* **2017**, *11*, 10844-10851.
11. Huang, H.; Ruditskiy, A.; **Choi, S.-I.**; Zhang, L.; Liu, J.; Ye, Z. and Xia Y.* "One-Pot Synthesis of Penta-twinned Palladium Nanowires and Their Enhanced Electrocatalytic Properties," *ACS Appl. Mater. Interfaces* **2017**, *9*, 31203-31212.
12. **Choi, S.-I.*** "고분자 전해질 연료전지의 산소환원반응용 정팔면체 백금-니켈 합금 나노 촉매," *CHEMWORLD* **2017**, *57*, 34-38.
13. Cheon, S. Y.; Yoon, J.-S.; Oh, K. H.; Jang, K. Y.; Seo, J. H.; Park, J. Y.; **Choi, S.-I.**; Seo, W. S.*; Lee, G.* and Nam, K. M.* "Sonochemical Synthesis of ZnO-ZnS Core-shell Nanorods for Enhanced Photoelectrochemical Water Oxidation," *J. Am. Ceram. Soc.* **2017**, *100*, 3825-3834.
14. Kim, H. J.; Ruqia, B.; Kang, M. S.; Lim, S. B.; Choi, R.; Nam, K. M.; Seo, W. S.*; Lee, G.* and **Choi, S.-I.*** "Shape-Controlled Pt Nanocubes Directly Grown on Carbon Supports and Their Electrocatalytic Activity toward Methanol Oxidation," *Sci. Bull.* **2017**, *62*, 943-949.
15. Hong, Y.; Kim, H. J.; Yang, D.; Lee, G.; Nam, K. M.; Jung, M.-H.; Kim, Y.-M.*; **Choi, S.-I.*** and Seo, W. S.* "Facile Synthesis of Fully Ordered L10-FePt Nanoparticles with Controlled Pt-Shell Thicknesses for Electrocatalysis," *Nano Res.* **2017**, *10*, 2866-2880.
16. Chang, Q.; Xu, Y.; Duan, Z.; Xiao, F.; Fu, F.; Hong, Y.; Kim, J.; **Choi, S.-I.***; Su, D.* and Shao, M.* "Structural Evolution of Sub-10 nm Octahedral Platinum-Nickel Bimetallic Nanocrystals," *Nano Lett.* **2017**, *17*, 3926-3931.
17. Ruqia, B.; Nam, K. M.; Lee, H.; Lee, G.* and **Choi, S.-I.*** "Facile Synthesis of High Crystalline ZnO Nanorods with Controlled Aspect Ratios and Their Optical Properties," *CrystEngComm* **2017**, *19*, 1454-1458.

18. Ruqia, B.; Na, K.* and **Choi, S.-I.*** "Critical Role of Reaction Temperature for Shaping Bimetallic Pt-Co Nanocrystals," *High Temp. High Press.* **2016**, *5*-6, 381-389.
19. da Silva, R. R.; Yang, M.; **Choi, S.-I.**; Chi, M.; Luo, M.; Zhang, C.; Li, Z.-Y.; Camargo, P. H. C.; Ribeiro, S. J. L. and Xia, Y.* "Facile Synthesis of Sub-20 nm Silver Nanowires through a Bromide-Mediated Polyol Method," *ACS Nano* **2016**, *10*, 7892-7900.
20. Park, J.; Liu, J.; Peng, H.-C.; Figueroa-Cosme, L.; Miao, S.; **Choi, S.-I.**; Bao, S.; Yang, X. and Xia, Y.* "Coating Pt–Ni Octahedra with Ultrathin Pt Shells to Enhance the Durability without Compromising the Activity toward Oxygen Reduction," *ChemSusChem* **2016**, *9*, 2209-2215.
21. Kavian, R.;[†] **Choi, S.-I.**;[†] (equal contribution) Park, J.; Liu, T.; Peng, H.-C.; Lu, N.; Wang, J.; Kim, M. J.; Xia, Y.* and Lee, S. W.* "Pt–Ni Octahedral Nanocrystals as a Class of Highly Active Electrocatalysts toward Hydrogen Evolution Reaction in an Alkaline Electrolyte," *J. Mater. Chem. A* **2016**, *4*, 12392-12397.
22. Lee, S. W.; Yoon, J.-S.; Kang, S.; Kwon, K.; Chang, K. S.; Lee, S. G.; **Choi, S.-I.**; Jeong, J.-R.; Lee, G.; Nam, K. M. "Sustainable Method for the Large-Scale Preparation of Fe₃O₄ Nanocrystals," *J. Am. Ceram. Soc.* **2016**, *99*, 2578-2584.
23. **Choi, S.-I.*** "Facile synthesis of platinum octahedra and cubes through the manipulation of reduction kinetics," *Adv. Powder Technol.* **2016**, *27*, 1862-1867.
24. Shin, S; Ahn, S. H.; Choi, S; **Choi, S.-I.**; Nayab, S. and Lee, H.* "Synthesis and Structural Characterization of 5-Coordinate Cobalt(II), Copper(II) and 4-Coordinate Zinc(II) Complexes Containing N'-Cyclopentyl Substituted N,N-Bispyrazolylmethylamine," *Polyhedron* **2016**, *110*, 149-156.
25. Ahn, S. H.; **Choi, S.-I.**; Jung, M. J.; Nayab, S. and Lee, H.* "Novel Cobalt(II) Complexes Containing N,N-di(2-picollyl)amine Based Ligands; Synthesis, Characterization and Application towards Methyl Methacrylate Polymerisation," *J. Mol. Struct.* **2016**, *1113*, 24-31.
26. Hong, J. W.; Kim, Y.; Wi, D. H.; Lee, S.; Lee, S.-U.; **Choi, S.-I.** and Han, S. W.* "Ultrathin Free-Standing Ternary Alloy Nanosheets," *Angew. Chem. Int. Ed.* **2016**, *128*, 2803-2808.
27. **Choi, S.-I.**; Lee, S. R.; Ma, C.; Oliy, B.; Luo, M.; Chi, M. and Xia, Y.* "Facile Synthesis of Rhodium Icosahedra with Controlled Sizes up to 12 nm," *ChemNanoMat* **2016**, *2*, 61-66.
28. Jung, J.; Song, K.; Bae, Y.; **Choi, S.-I.**; Cho, E.; Kang, K. and Kang, Y.-M.* "Achieving Outstanding Li⁺-ORR and -OER Activities via Edge- and Corner-Embedded Bimetallic Nanocubes for Rechargeable Li-O₂ Batteries," *Nano Energy* **2015**, *18*, 71-80.
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30. Zhang, L.; Roling, L. T.; Wang, X.; Vara, M.; Chi, M.; Liu, J.; **Choi, S.-I.**; Park, J.; Herron, J. A.; Xie, Z.; Mavrikakis, M.; Xia, Y.* "Platinum-Based Nanocages with Subnanometer-Thick Walls and Well-Defined, Controllable Facets," *Science* **2015**, *349*, 412-416.
31. Wang, X.;[†] **Choi, S.-I.**;[†] (equal contribution) Roling, L. T.; Luo, M.; Ma, C.; Zhang, L.; Chi, M.; Liu, J.; Xie, Z.; Herron, J. A.; Mavrikakis, M.* and Xia, Y.* "Palladium–Platinum Core–Shell Icosahedra with Substantially Enhanced Activity and Durability towards Oxygen Reduction," *Nat. Commun.* **2015**, *6*, 7594.
32. **Choi, S.-I.**; Herron, J. A.; Scaranto, J.; Huang, H.; Xia, X.; Wang, Y.; Lv, T.; Park, J.; Peng, H.-C.; Mavrikakis, M. and Xia, Y.* "A Comprehensive Study of Formic Acid Oxidation on

- Palladium Nanocrystals with Different Types of Facets and Twin Defects," *ChemCatChem* **2015**, 7, 2077-2084.
33. Park, J.; Zhang, L.; **Choi, S.-I.**; Roling, L. T.; Lu, N.; Herron, J. A.; Xie, S.; Wang, J.; Kim, M. J.; Mavrikakis, M. and Xia, Y.* "Atomic Layer-by-Layer Deposition of Platinum on Palladium Octahedra for Enhanced Catalysts toward the Oxygen Reduction Reaction," *ACS Nano* **2015**, 9, 2635-2647.
 34. Zhang, L.; **Choi, S.-I.**; Tao, J.; Peng, H.-C.; Xie, S.; Zhu, Y.; Xie, Z. and Xia, Y.* "Pd-Cu Bimetallic Tripods: A Mechanistic Understanding of the Synthesis and Their Enhanced Electrocatalytic Activity for Formic Acid Oxidation," *Adv. Funct. Mater.* **2014**, 24, 7520-7529.
 35. **Choi, S.-I.**; Shao, M.;* Lu, N.; Ruditskiy, A.; Peng, H.-C.; Park, J.; Guerrero, S.; Wang, J.; Kim, M. J. and Xia, Y.* "Synthesis and Characterization of Pd@Pt-Ni Core–Shell Octahedra with High Activity toward Oxygen Reduction," *ACS Nano* **2014**, 8, 10363-10371.
 36. Ruditskiy, A.; **Choi, S.-I.**; Peng, H.-C. and Xia, Y.* "Shape-Controlled Metal Nanocrystals for Catalytic Applications," *MRS Bull.* **2014**, 39, 727-737 (invited review article).
 37. Zheng, Y.; Liu, W.; Lv, T.; Luo, M.; Hu, H.; Lu, P.; **Choi, S.-I.**; Zhang, C.; Tao, J.; Zhu, Y.; Li, Z.-Y. and Xia, Y.* "Seed-Mediated Synthesis of Gold Tetrahedra in High Purity and with Tunable, Well-Controlled Sizes," *Chem. Asian J.* **2014**, 9, 2635-2640.
 38. Xie, S.;† **Choi, S.-I.**,† (†equal contribution) Lu, N.; Roling, L. T.; Herron, J. A.; Zhang, L.; Park, J.; Wang, J.; Kim, M. J.; Xie, Z.; Mavrikakis, M. and Xia, Y.* "Atomic Layer-by-Layer Deposition of Pt on Pd Nanocubes for Catalysts with Enhanced Activity and Durability toward Oxygen Reduction," *Nano Lett.* **2014**, 14, 3570-3576.
 39. Lee, S. U.; Hong, J. W.; **Choi, S. I.** and Han, S. W.* "Universal Sulfide-Assisted Synthesis of M-Ag Heterodimers (M= Pd, Au, Pt) as Efficient Platforms for Fabricating Metal-Semiconductor Heteronanostructures," *J. Am. Chem. Soc.* **2014**, 136, 5221-5224.
 40. **Choi, S.-I.**;† Xie, S.;† (†equal contribution) Shao, M.;* Lu, N.; Guerrero, S.; Odell, J. H.; Park, J.; Wang, J.; Kim, M. J. and Xia, Y.* "Controlling the Sizes and Compositions of Nanosized Pt-Ni Octahedra to Optimize Their Catalytic Activities toward Oxygen Reduction Reaction," *ChemSusChem* **2014**, 7, 1476-1483.
 41. Qi, Y.; Bian, T.; **Choi, S.-I.**; Jiang, Y.; Jin, C.; Fu, M.; Zhang, H.* and Yang, D. "Kinetically Controlled Synthesis of Pt-Cu Alloy Concave Nanocubes with High-Index Facets for Methanol Electro-Oxidation," *Chem. Commun.* **2014**, 50, 560-562.
 42. Wang, Y.; **Choi, S.-I.**; Zhao, X.; Xie, S.; Peng, H.-C.; Chi, M.; Huang, C. Z. and Xia, Y.* "Polyol Synthesis of Ultrathin Pd Nanowires via Attachment-Based Growth and Their Enhanced Activity towards Formic Acid Oxidation," *Adv. Funct. Mater.* **2014**, 24, 131-139.
 43. Xia, X.; **Choi, S.-I.**; Herron, J.; Lu, N.; Scaranto, J.; Peng, H.-C.; Wang, J.; Mavrikakis, M.; Kim, M. J. and Xia, Y.* "Facile Synthesis of Pd Right Bipyramids and Their Use as Seeds for Overgrowth and as Catalysts for Formic Acid Oxidation," *J. Am. Chem. Soc.* **2013**, 135, 15706-15709.
 44. Lv, T.; Wang, Y.; **Choi, S.-I.**; Chi, M.; Tao, J.; Pan, L.; Huang, C. Z.; Zhu, Y. and Xia, Y.* "Controlled Synthesis of Nanosized Palladium Icosahedra and Their Catalytic Activity towards Formic-Acid Oxidation," *ChemSusChem* **2013**, 6, 1923-1930.
 45. Hyun, D. C.; Lu, P.; **Choi, S.-I.**; Jeong, U. and Xia, Y.* "Microscale Polymer Bottles Corked with a Phase-Change Material for Temperature-Controlled Release," *Angew. Chem. Int. Ed.* **2013**, 52, 10468-10471.

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47. Xie, S.; **Choi, S.-I.**; Xia, X. and Xia, Y.* "Catalysis on Faceted Noble-Metal Nanocrystals: Both Shape and Size Matter," *Curr. Opin. Chem. Eng.* **2013**, *2*, 142-150. (invited review article)
48. **Choi, S.-I.**;† Lee, S.-U.;† (†equal contribution) Choi, R.; Park, J. T. and Han, S. W.* "Nitrogen-Doped Pt/C Electrocatalysts with Enhanced Activity and Stability toward Oxygen Reduction Reaction," *ChemPlusChem* **2013**, *78*, 1252-1257.
49. Choi, R.; **Choi, S.-I.**; Choi, C. H.; Nam, K. M.; Woo, S. I.; Park, J. T. and Han, S. W.* "Designed Synthesis of Well-Defined Pd@Pt Core-Shell Nanoparticles with Controlled Shell Thickness as Efficient Oxygen Reduction Electrocatalysts," *Chem. Eur. J.* **2013**, *19*, 8190-8198.
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51. **Choi, S.-I.**;† Lee, S.-U.;† (†equal contribution) Kim, W. Y.;* Choi, R.; Hong, K.; Nam, K. M.; Han, S. W.* and Park, J. T.* "Composition-Controlled PtCo Alloy Nanocubes with Tuned Electrocatalytic Activity for Oxygen Reduction," *ACS Appl. Mater. & Interf.* **2012**, *4*, 6228-6234.
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53. **Choi, S.-I.**; Choi, R.; Han, S. W.* and Park, J. T.* "Shape-Controlled Synthesis of Pt₃Co Nanocrystals with High Electrocatalytic Activity toward Oxygen Reduction," *Chem. Eur. J.* **2011**, *17*, 12280-12284.
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CONFERENCE PRESENTATIONS

1. **Choi, S.-I.** "Catalytic Surface Specificity of Pt and Pt-Ni(OH)₂ Based Electrocatalysts for Hydrogen Evolution Reaction in Alkaline Electrolytes," 2018 KSIEC Fall Meeting, Jeju, Korea, November, **2018**.

2. **Choi, S.-I.** "Highly Durable Nickel Octahedra as the Electrocatalysts towards the Oxygen Evolution Reaction in an Alkaline Electrolyte," The 2018 E-MRS Spring Meeting and Exhibit, Strasbourg, France, June, **2018**.
3. **Choi, S.-I.** "Morphology-Controlled Pt-Based Nanocrystals as the Electrocatalysts towards the Oxygen Reduction Reaction," CBME Seminar at HKUST, Hong Kong, January, **2018**.
4. **Choi, S.-I.** "Noble Metal-Based Bimodal Nanocatalysts for Hydrogen Evolution Reaction in an Alkaline Electrolyte," The 120th National Meeting of the Korean Chemical Society, Gwangju, Korea, October, **2017**.
5. **Choi, S.-I.** "Synthesis of Noble Metal-Based Nanocatalysts for Catalytic and Electrocatalytic Applications," Seminar at MISiS, Moscow, Russia, September, **2017**.
6. **Choi, S.-I.** "Bimodal surface of Pt nanocubes-Ni(OH)₂ for the Hydrogen Evolution Reaction in an Alkaline Electrolyte," EUROPACAT 2017, Florence, Italy, August, **2017**.
7. **Choi, S.-I.** "Bimodal surface of Pt-Ni Octahedra towards the Electrocatalytic Hydrogen Evolution Reaction in an Alkaline Electrolyte," Powder Technology Division Symposium of the Korean Institute of Chemical Engineers, Daejeon, Korea, February, **2017**.
8. **Choi, S.-I.** "Bimetallic Pt-Ni Octahedra for Hydrogen Evolution Reaction in an Alkaline Electrolyte," The 2016 E-MRS Fall Meeting and Exhibit, Warsaw, Poland, September, **2016**.
9. **Choi, S.-I.** "Palladium-Platinum Based Nanocrystals with Various Structures and Morphologies for Oxygen Reduction Reaction," Electrochemical Energy Science and Technology 2016, Kunming, China, August, **2016**.
10. **Choi, S.-I.** "Pt-Based Catalysts for the Oxygen Reduction Reaction," BIT's 7th Annual Global Congress of Catalysis-2016, Ilsan, Korea, June, **2016**.
11. **Choi, S.-I.** "Octahedral Pt-Ni Alloy Electrocatalyst for Hydrogen Evolution Reaction in an Alkaline Electrolyte," The 117th National Meeting of the Korean Chemical Society, Ilsan, Korea, April, **2016**.
12. **Choi, S.-I.** and Ruqia, B. "Shape-Controlled Synthesis of Pt-Co Nanoparticles by Manipulating the Reaction Temperature," The 16th Meeting of Korean Society of Thermophysical Properties, Jinju, Korea, April, **2016**.
13. **Choi, S.-I.** "Pt-Based Nanocatalysts with Enhanced Electrocatalytic Activities toward Oxygen Reduction Reaction," The 2016 Spring Meeting of Korean Electrochemical Society, Gwangju, Korea, April, **2016**.
14. **Choi, S.-I.** "Novel Platinum-Based Nanocrystals with Enhanced Activity and Durability toward Oxygen Reduction," The 116th National Meeting of the Korean Chemical Society, Daegu, Korea, October, **2015**.
15. **Choi, S.-I.** "Atomic Layer-by-Layer Deposition of Pt on Pd for Catalysts with Enhanced Activity toward Oxygen Reduction," The 116th National Meeting of the Korean Chemical Society, Daegu, Korea, October, **2015**.
16. **Choi, S.-I.** "Palladium Nanocrystals for Formic Acid Electro-Oxidation: The Effects of Facet and Twin Defect," APT 2015, Seoul, Korea, September, **2015**.
17. **Choi, S.-I.** and Xia, Y. "Palladium Nanocrystals for Formic Acid Electro-Oxidation: The Effects of Facet and Twin Defect," 2014 AIChE Annual Meeting, Atlanta, Georgia, U.S.A., November, **2014**.
18. Xia, Y. and **Choi, S.-I.** "Novel Pt-Based Catalysts for the Oxygen Reduction Reaction," 2014 AIChE Annual Meeting, Atlanta, Georgia, U.S.A., November, **2014**.

19. **Choi, S.-I.** and Xia, Y. "Pt-Based Catalysts with High Activities toward the Oxygen Reduction Reaction," Gordon Research Seminars (Fuel Cells), Smithfield, Rhode Island, U.S.A., August, **2014**.
20. **Choi, S.-I.** and Xia, Y. "Pt-Ni Octahedra with High Activities toward the Oxygen Reduction Reaction," MRS Spring Meeting & Exhibit, San Francisco, California, U.S.A., April, **2014**.
21. **Choi, S.-I.** and Han, S. W. "Shape-Controlled Synthesis of PtCo Nanocrystals with High Electrocatalytic Activity toward Oxygen Reduction," Materials Chemistry Division Symposium of the Korean Chemical Society, Yong-in, Korea, June, **2011**.
22. **Choi, S.-I.**; Choi, R.; Han, S. W. and Park, J. T. "Shape-Controlled Synthesis of Pt₃Co Nanocrystals with High Electrocatalytic Activity toward Oxygen Reduction," The 107th National Meeting of the Korean Chemical Society, Jeju, Korea, April, **2011**.
23. **Choi, S.-I.**; Choi, R.; Jang, J. K.; Park, S. H. and Park, J. T. "Synthesis and Characterization of Pt₉Co Nanocubes with High Activity for Oxygen Reduction," The 106th National Meeting of the Korean Chemical Society, Daegu, Korea, October, **2010**.
24. **Choi, S.-I.**; Choi, R.; Jang, J. K.; Park, S. H. and Park, J. T. "Synthesis and Characterization of Pt₉Co Nanocubes with High Activity for Oxygen Reduction," Inorganic Chemistry Division Symposium of the Korean Chemical Society, Busan, Korea, August, **2010**.
25. **Choi, S.-I.**; Nam, K. M.; Shim, J. H.; Park, B. K. and Park, J. T. "Preparation and Optical Properties of Colloidal, Monodisperse, and Highly Crystalline ITO Nanoparticles," 23rd International Conference on Organometallic Chemistry, Rennes, France, July, **2008**.
26. **Choi, S.-I.**; Nam, K. M. and Park, J. T. "Preparation and Optical, Electrical properties of Highly Monodisperse ITO Nanoparticles," BK21 International Symposium KAIST, Daejeon, Korea, January, **2008**.
27. **Choi, S.-I.** and Park, J. T. "Preparation of Highly Monodisperse ITO Nanoparticles and Their Optical and Electrical Properties," BK21 KAIST-Aarhus Univ. Joint Symposium, Jeju, Korea, February, **2007**.
28. **Choi, S.-I.** and Park, J. T. "Preparation of Highly Monodisperse ITO Nanoparticles and Their Optical and Electrical Properties," The 98th National Meeting of the Korean Chemical Society, Gwangju, Korea, October, **2006**.

PATENTS

1. **Choi, S.-I.** and Kim, H. J. "Shape-controlled Pt nanocubes and method of manufacture thereof," Korea patent pending **2017**.
2. Seo, W. S.; Hong, Y. H. and **Choi, S.-I.** "L10-FePt nanoparticles with controlled Pt-shell thicknesses, synthesis and applications of the nanoparticles," Korea patent pending **2017**.
3. Xia, Y.; **Choi, S.-I.** and Xie, S. "Pt-based nanocages with well-defined surface structures and ultrathin (2-10 atomic layers) walls for oxygen reduction reduction," US patent pending.
4. Xia, Y.; **Choi, S.-I.**; Lu, P.; Karpov, A.; Preli, D.; Wassermann, K.; Sundermann A. "Pt Group Metal (PGM) Catalysts for Automotive Emissions Treatment," WO 2016/123534.
5. Xia, Y.; **Choi, S.-I.**; Karpov, A.; Preli, D.; Wassermann, K.; Sundermann A. "Rh-Containing Catalysts for Automotive Emissions Treatment," WO 2016/123523.
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