



Dr. Taeseup Song

CONTACT INFORMATION

Dr. Taeseup Song, Assistant professor
Department of Energy Engineering
Hanyang University, Seoul 712-749, Korea
E-Mail: tssong@hanayng.ac.kr
TEL: +82-2-2220-0502

EDUCATION

Ph.D. (2006.03-2012.02)
Department of Materials Science & Engineering
Hanyang University, Seoul, South Korea
Advisor : Ungyu Paik

Bachelor of Engineering (1999.03-2006.02)
Division of Ceramic Engineering
Hanyang University, Seoul, South Korea

EXPERIENCE

2015.03-2017.08.
Assistant professor
School of Materials Science and Engineering
Yeungnam University, Gyeongsan, Korea

2013.07-2015.02.
Post doctoral researcher
Energy center, University of Maryland at college park
College Park, MD, 20742, USA
Advisor: Prof. Liangbing Hu

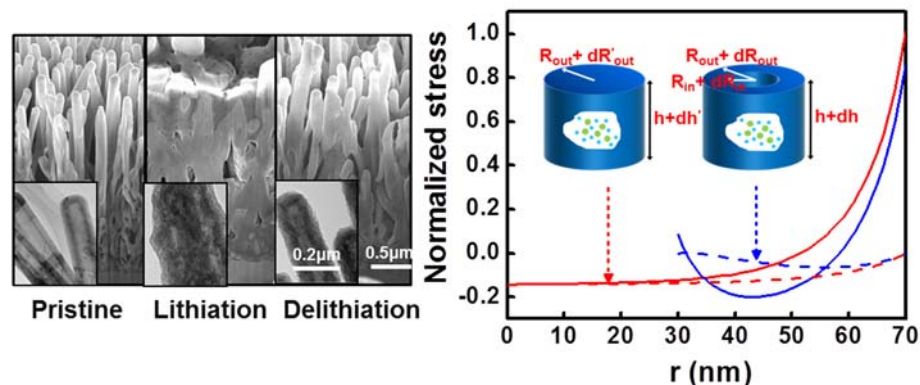
2012.09-2013.06
Post doctoral researcher
Department of Chemistry, University of Waterloo
200 University Ave W, Waterloo, ON N2L 3G1, Canada
Advisor: Prof. Linda Nazar

2012.02- 2012.08
Post doctoral researcher
Department of Materials Science & Engineering,
Hanyang University
222 Wangsimni-ro , Seongdong-gu, Seoul, Korea
Advisor: Prof. Ungyu Paik

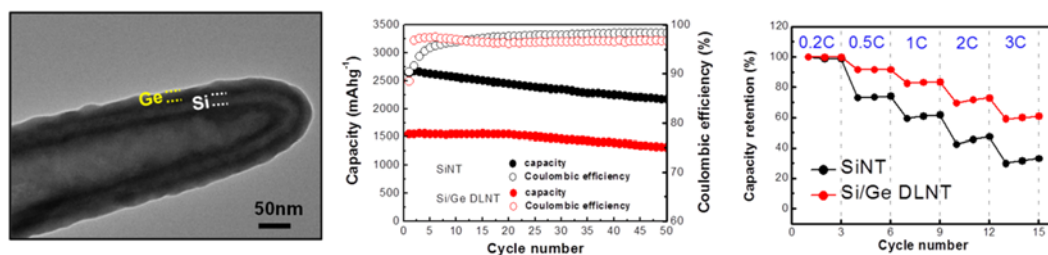
RESEARCH INTERESTS

-Synthesis of nanomaterials
-Energy storage devices, energy harvesting devices

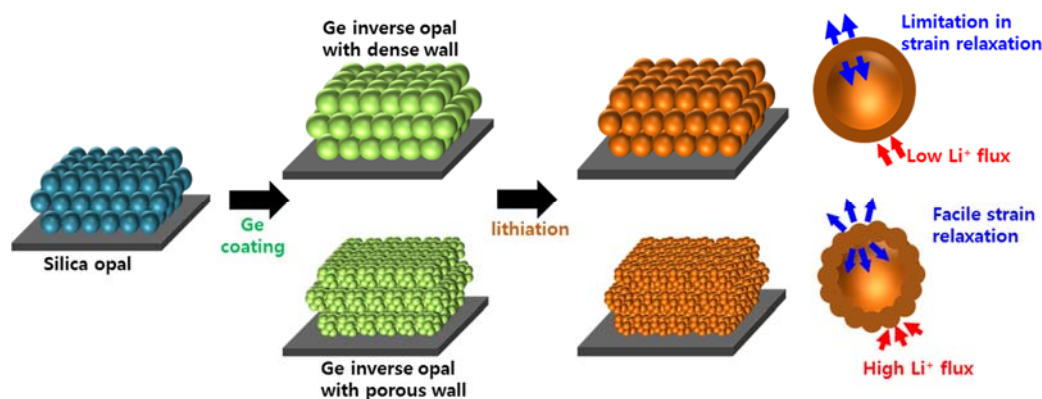
[1] Song, T.; Xia, J.; Lee, J. H.; Lee, D. H.; Kwon, M. S.; Choi, J. M.; Wu, J.; Doo, S. K.; Chang, H.; Park, W. I.; Zang, D. S.; Kim, H.; Huang, Y.; Hwang, K. C.; Rogers, J. A.; Paik, U. Arrays of sealed silicon nanotubes as anodes for lithium ion batteries, *Nano letters*, 2010, 10, 1710. Citation >600



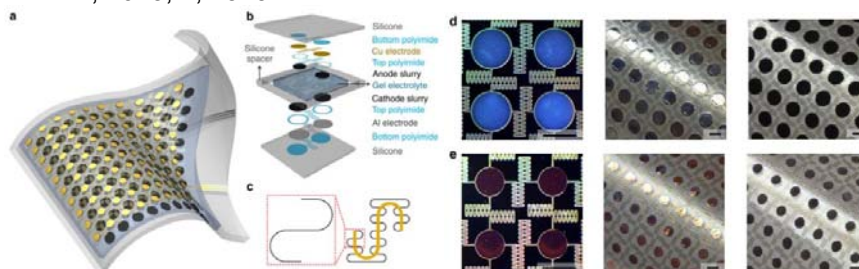
[2] Song, T.; Cheng, H.; Choi, H.; Han, H.; Lee, D.; Yoo, D.; Kwon, M.; Choi, J.; Doo, S.; Chang, H.; Huang, Y.; Park, W.; Chung, Y.; Kim, H.; Rogers, J. A.; Paik, U. Si/Ge Double Layered Nanotube Array as Lithium Ion Battery Anode, *ACS Nano*, 2012, 6 (1), 303–309



[3] Song, T.*; Jeon, Y.*; Samal, M.; Han, H.; Park, H.; Yi, D. K.; Choi, J. M.; Choi, Y.; Paik, U., Ge inverse opal with porous wall as an anode for lithium ion batteries, *Energy & Environmental science*, 2012, 5, 9028-9033 (*equally contributed)

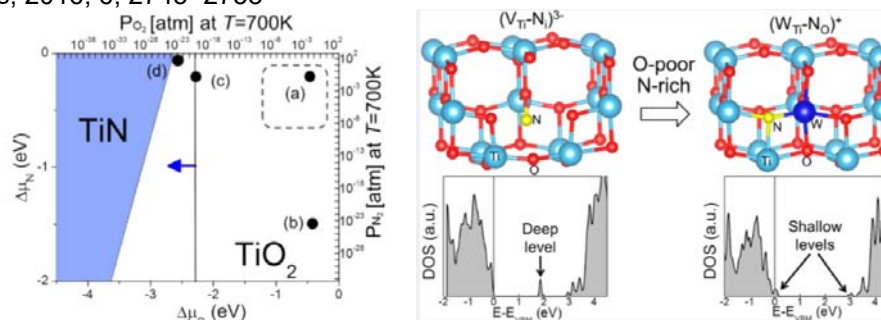


[4] Xu, S.; Zhang, Y.; Cho, J.; Lee, J.; Huang, X.; Jia, L.; Fan, J.; Su, Y.; Su, J.; Zhang, H.; Cheng, H.; Lu, B.; Yu, C.; Chuang, C.; Kim, T.-I.; Song, T.; Shigeta, K.; Kang, S.; Dagdeviren, C.; Petrov, I.; Braun, P.; Huang, Y.*; Paik, U.; Rogers, J.*; Stretchable batteries with self-similar serpentine interconnects and integrated wireless recharging systems, *Nature Communications*, 2013, 4, 1543

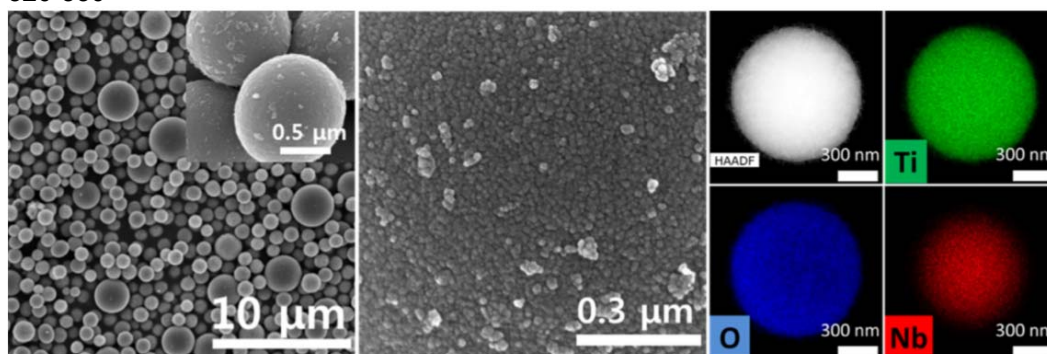


[5] Choi, H., Shin, D., Yeo, B.C., Song, T., Han, S.S., Park, N., Kim, S.*; Simultaneously controllable doping sites and the activity of a W-N co-doped TiO₂ photocatalyst, *ACS*

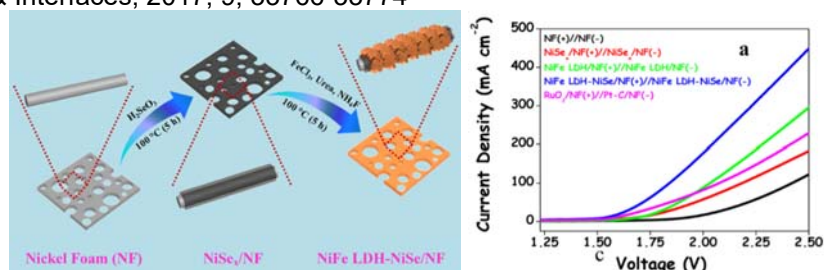
Catalysis, 2016, 6, 2745–2753



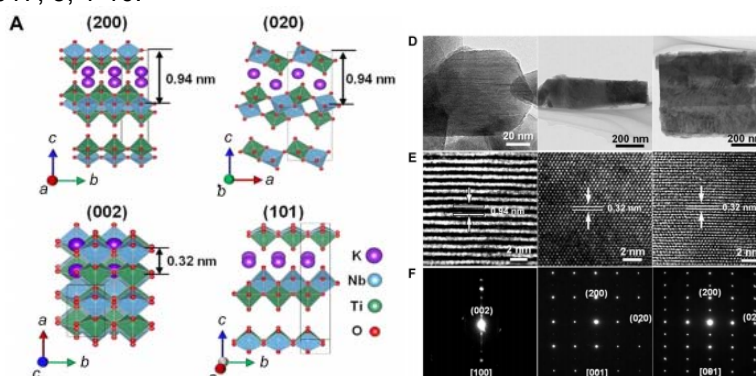
[6] S. Khan, H. Cho, D. Kim, S. S. Han, K. H. Lee, S. Cho*, **T. Song***, H. Choi*, Defect engineering toward strong photocatalysis of Nb-doped anatase TiO₂: Computational predictions and experimental verifications, Applied Catalysis B: Environmental, 2017, 206, 520-530



[7] S. Dutta, A. Indra, Y. Feng, **T. Song**, U. Paik*, Self-Supported Nickel Iron Layered Double Hydroxide-Nickel Selenide Electrocatalyst for Superior Water Splitting Activity. ACS Applied Materials & Interfaces, 2017, 9, 33766-33774



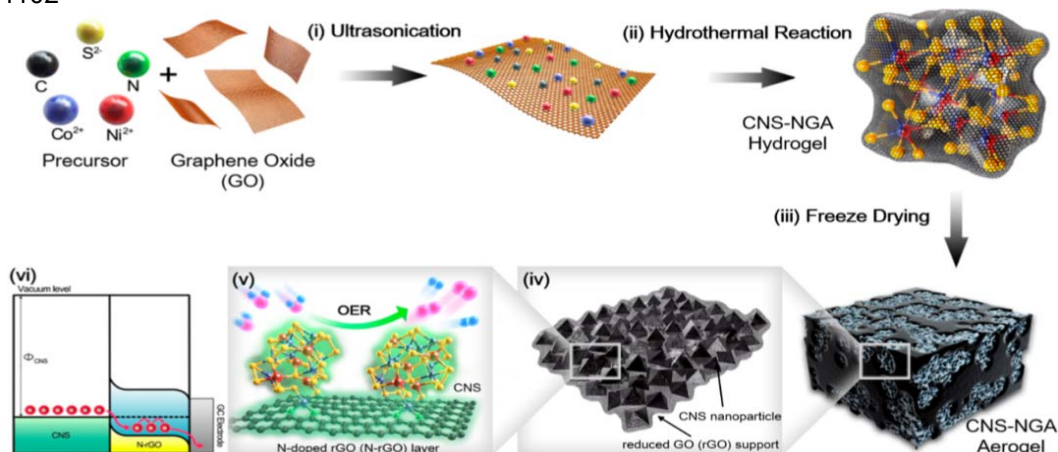
[8] H. Park, J. Kwon, H. Choi, **T. Song***, U. Paik*, Microstructural control of new intercalation layered titanoniobates with large and reversible d-spacing for easy Na⁺ ion uptake. Science Advances, 2017, 3, 1-10.



[9] S Dutta, A Indra, Y Feng, HS Han, **T. Song***. Promoting Electrocatalytic Overall Water Splitting with Nanohybrid of Transition Metal Nitride-Oxynitride. Applied Catalysis B:



[10] HS Han, KM Kim, H Choi*, G Ali, KY Chung, YR Hong, J Choi, J Kwon, S. Lee, J. Lee, J. Ryu, **T. song***, S.Mhim*. Parallelized Reaction Pathway and Stronger Internal Band Bending by Partial Oxidation of Metal Sulfide–Graphene Composites: Important Factors of Synergistic Oxygen Evolution Reaction Enhancement. ACS Catalysis. 2018, 8 (5), p4091-4102



REFEREED
JOURNAL
PUBLICATIONS

[1] **Song, T.**; Choung, J. W.; Park, J. G.; Park, W. I.; Rogers, J. A.; Paik, U. Surface polarity and shape-controlled synthesis of ZnO nanostructures on GaN thin films based on catalyst-free metalorganic vapor phase epitaxy, *Advanced Materials*, 2008, 20, 4464.

[2] Son, K. S.; Lee, D. H.; Choung, J. W.; Pyun, Y. B.; Park, W. I.; **Song, T.**; Paik, U. Catalyst-free synthesis and cathodoluminescent properties of ZnO nanobranched on Si nanowire backbones, *Journal of Materials Research*, 2008, 23, 3403.

[3] **Song, T.**; Park, W. I.; Paik, U. Epitaxial growth of one-dimensional GaN nanostructures with enhanced near-band edge emission by chemical vapor deposition, *Applied Physics Letters*, 2010, 96.

[4] Park, J. U.; Lee, S.; Unarunotai, S.; Sun, Y.; Dunham, S.; **Song, T.**; Ferreira, P. M.; Alleyene, A. G.; Paik, U.; Rogers, J. A. Nanoscale, electrified liquid jets for high-resolution printing of charge, *Nano letters*, 2010, 10, 584.

[5] **Song, T.**; Xia, J.; Lee, J. H.; Lee, D. H.; Kwon, M. S.; Choi, J. M.; Wu, J.; Doo, S. K.; Chang, H.; Park, W. I.; Zang, D. S.; Kim, H.; Huang, Y.; Hwang, K. C.; Rogers, J. A.; Paik, U. Arrays of sealed silicon nanotubes as anodes for lithium ion batteries, *Nano letters*, 2010, 10, 1710.

[6] Sudhagar, P.*; **Song, T.***; Lee, D. H.; Mora-Seró, I.; Bisquert, J.; Laudenslager, M.; Sigmund, W. M.; Park, W. I.; Paik, U.; Kang, Y. S. High open circuit voltage quantum dot sensitized solar cells manufactured with ZnO nanowire arrays and Si/ZnO branched hierarchical structures, *Journal of Physical Chemistry Letters*, 2011, 2, 1984. (*equally contributed)

[7] Han, H.*; **Song, T.***; Bae, J.; Nazar, L. F.; Kim, H.; Paik, U. Nitridated TiO₂ hollow nanofibers as an anode material for high power lithium ion batteries, *Energy & Environmental science*, 2011, 4, 4532. (*equally contributed)

- [8] **Song, T.**; Lee, D. H.; Kwon, M. S.; Choi, J. M.; Han, H.; Doo, S. G.; Chang, H.; Park, W. I.; Sigmund, W.; Kim, H.; Paik, U. Silicon nanowires with a carbon nanofiber branch as lithium-ion anode material, *Journal of Materials Chemistry*, 2011, 21, 12619.
- [9] **Song, T.**; Cheng, H.; Choi, H.; Han, H.; Lee, D.; Yoo, D.; Kwon, M.; Choi, J.; Doo, S.; Chang, H.; Huang, Y.; Park, W.; Chung, Y.; Kim, H.; Rogers, J. A.; Paik, U. Si/Ge Double Layered Nanotube Array as Lithium Ion Battery Anode, *ACS Nano*, 2012, 6 (1), 303–309
- [10] Park, H.*; **Song, T.***; Han, H.; Devadoss, A.; Yuh, J.; Choi, C.; Paik, U., SnO₂ encapsulated TiO₂ hollow nanofibers as anode material for lithium ion batteries, *Electrochemistry Communications*, 2012, 22 (0), 81-84. (*equally contributed)
- [11] **Song, T.***; Jeon, Y.*; Samal, M.; Han, H.; Park, H.; Yi, D. K.; Choi, J. M.; Choi, Y.; Paik, U., Ge inverse opal with porous wall as an anode for lithium ion batteries, *Energy & Environmental science*, 2012, 5, 9028-9033 (*equally contributed)
- [12] Han, H.*; **Song, T.***; Lee, E.-K.; Devadoss, A.; Jeon, Y.; Chung, Y.-C.; Choi, Y.-M.; Jung, Y.-G.; Paik, U., Dominant factors governing the rate capability of TiO₂ nanotube anode for high power lithium ion batteries, *ACS Nano*, 2012, 6 (9), 8308–8315 (*equally contributed)
- [13] Park, K. T.; Xia Fan; Kim, S. W.; Kim, S. B.; **Song, T.**; Paik, U. and Park, W. I., Facile Synthesis of Ultrafine ZnO Nanotubes with Well-organized Hexagonal Nanowalls and Sealed Layouts: Applications for Lithium Ion Battery Anodes, *Journal of Physical Chemistry C*, 2013, 117 (2), 1037–1043
- [14] Rodenas, P.*; **Song, T.***; Sudhagar, P.; Marzari, G.; Han, H.; Badia-Bou, L.; Giménez, S.; Fabregat-Santiago F.; Mora-Seró, I.; Bisquert, J.; Paik, U.; Kang, Y. S., Quantum dot based heterostructures for unassisted photoelectrochemical hydrogen generation, *Advanced Energy Materials*, 2013, 3, 176-182 (*equally contributed)
- [15] Xu, S.; Zhang, Y.; Cho, J.; Lee, J.; Huang, X.; Jia, L.; Fan, J.; Su, Y.; Su, J.; Zhang, H.; Cheng, H.; Lu, B.; Yu, C.; Chuang, C.; Kim, T.-I.; **Song, T.**; Shigeta, K.; Kang, S.; Dagdeviren, C.; Petrov, I.; Braun, P.; Huang, Y.*; Paik, U.; Rogers, J.*; Stretchable batteries with self-similar serpentine interconnects and integrated wireless recharging systems, *Nature Communications*, 2013, 4, 1543
- [16] Yang, H.; **Song, T.**; Lee, S.; Han, H.; Devadoss, A.; Sigmund, W. and Paik U., Tin indium oxide/Graphene Nanosheet Nanocomposite as an Anode Material for Lithium Ion Batteries with Enhanced Lithium Storage Capacity and Rate Capability, *Electrochimica Acta*, 2013, 91, 275–281
- [17] Han, H.; Sudhagar, P.; **Song, T.**; Jeon, Y.; Mora-Seró I.; Fabregat-Santiago F.; Paik, U.; Kang, Y. S.; Three dimensional-TiO₂ nanotube array photoanode architectures assembled on thin hollow nanofibrous backbone and their performance in quantum dot-sensitized solar cells, *Chemical Communications*, 2013, 49, 2810-2812
- [18] Choi, J.; Lee S.; Ha, J.; **Song T.**; Paik U.; Sol-Gel Nanoglues for Organic Binder-Free TiO₂ Nanofiber Anode for Lithium Ion Batteries, *Nanoscale*, 2013, 5, 3230-3234
- [19] Xia, F.; Kim, S. B.; Cheng, H.; Lee, J. M.; **Song, T.**; Huang, Y.; Rogers, J.; Paik, U.; Park, W. I., Facile synthesis of free-standing silicon membranes with three-dimensional nanoarchitecture for anodes of lithium ion batteries, *Nano Letters*, 2013, 13, 3340–3346
- [20] Yang, H.; **Song, T.**; Devadoss, A.; Han, H.; Park, H.; Sigmund, W.; Kwon K.; Paik U., Polyaniline/Polyoxometalate Hybrid Nanofibers as Cathode for Lithium Ion Batteries with Improved lithium storage capacity, *Journal of Physical Chemistry C*, 2013, 117, 17376-17381
- [21] Devadoss, A.; Han, H.; **Song T.**; Kim, Y.; Paik, U.; Gold Nanoparticles-composite nanofibers for enzymatic electrochemical sensing, *Analyst*, 2013, 138, 5025-5030
- [22] Park, H.*; **Song, T.***; Han, H.; Paik, U., Electrospun Li₄Ti₅O₁₂ Nanofibers Sheathed with Conductive TiN/TiO_xN_y Layer as an Anode Material for High Power Li-ion Batteries, *Journal of*

Power Sources, 2013, 244, 726–730 (*equally contributed)

[23] Lee, S.; Ha, J.; Jo, S.; Choi, J.; **Song, T.**; Park, W.; Rogers, J.; Paik, U., Lego-like Assembly of Peelable, Deformable Components for Electronic Circuits, NPG Asia Materials, 2013, 5, e66

[24] Lee, S.; Ha, J., Choi, J., **Song, T.**; Lee, J.W.; Paik, U., 3D Cross-linked Nanoweb Architecture of Binder-free TiO₂ Electrodes for Lithium Ion Batteries, ACS Applied Materials & Interfaces, 2013, 5, 11525–11529

[25] **Song, T.**; Jeon, Y. *; Paik, U., Si nanotubes array sheathed with SiN/SiO_xN_y layer as an anode material for lithium ion batteries, Journal of Electroceramics, 2014, 32, 66-71

[26] **Song, T.**; Kil, K.; Jeon, Y.; Lee, S.; Shin, W.; Chung B.; Kwon, K.; Paik, U., Nitridated Si-Ti-Ni shape memory alloy as an anode for Li rechargeable batteries, Journal of Power Sources, 2014, 253, 282–286

[27] Kim, J.H.; Lee, S.; Lee, J.W.; **Song, T.**; Paik, U., 3D-interconnected Nanoporous RGO-CNT Structure for Supercapacitors Application, Electrochimica Acta, 2014, 125, 536-542

[28] Choi, J.; Sudhagar, P.; Lakshminathiraj, P.; Lee, J.; Devadoss, A.; Lee, S.; **Song, T.**; Hong, S.; Eito, S.; Terashima, C.; Han, T.; Kang, K.; Fujishima, A.; Kang, Y.; Paik, U., Three-dimensional wide-pore Gd- TiO₂ fibrous photoelectrodes for efficient visible light driven photocatalytic performance, RSC Advances, 2014,4, 11750-11757

[29] **Song, T.**; Hu, L.; Paik, U., One-dimensional Si Nanostructures for Li Ion Batteries, Journal of Physical Chemistry Letters, 2014, 5, 720–731

[30] **Song, T.**; Cheng, H.; Town, K.; Park, H.; Black, R.; Lee, S.; Sun, H. Y.; Park, W. I.; Huang, Y.; Rogers, J. A.; Nazar, L. F.; Paik, U., Electrochemical properties of Si-Ge hetero-structures as an anode material for lithium ion batteries, Advanced Functional Materials, 2014, 24, 1458-1464

[31] Park, H*.; **Song, T.***, Tripathi, R.; Lee, S.; Nazar, L.; Paik, U., Li₂MnSiO₄/Carbon Nanofiber Cathodes for Li-ion Batteries, Ionics, Online publication (*equally contributed)

[32] **Song, T.**; Han, H.; Choi, H.; Lee, J. W.; Park, H.; Lee, S.; Park, W. I.; Kim, S.; Liu, L.; Paik, U., TiO₂ Nanotubes Branched Tree on Carbon Nanofiber Nanostructure as an Anode for High Energy and Power Lithium Ion Batteries, Nano Research, 2014, 7, 491 - 501

[33] Kim, J.*; **Song, T.***; Park, H; Paik, U., Synthesis of Li₂MnSiO₄-Graphene Composite and Its Electrochemical Performances as a Cathode Material for Lithium Ion Batteries, Journal of Nanoscience and Nanotechnology, 14(10), 7898-7902 (*equally contributed)

[34] Sudhagar, P*.; Devadoss, A.*; **Song, T.***; Lakshminathiraj, P.; Han, H.; Lysak, V. V.; Terashima, C.; Nakata, K.; Fujishima, A.; Paik, U.; Kang, Y. S., Enhanced photocatalytic performance at a Au/N–TiO₂ hollow nanowire array by a combination of light scattering and reduced recombination, Physical Chemistry Chemical Physics 2014, 16, (33), 17748-17755. (*equally contributed)

[35] Haro, M.*; **Song, T.***; Guerrero, A.; Bertoluzzi, L.; Bisquert, J.; Paik, U.; Garcia-Belmonte, G. Germanium coating boosts lithium uptake in Si nanotube battery anodes, Physical Chemistry Chemical Physics, 2014, 16, (33), 17930-17935. (*equally contributed)

[36] Zhang, G.; Wu, H. B.; **Song, T.**; Paik, U.; Lou, X. W. TiO₂ Hollow Spheres Composed of Highly Crystalline Nanocrystals Exhibit Superior Lithium Storage Properties, Angewandte Chemie International Edition 2014, 126, (46),12798-12801.

[37] Park, H.; Wu, H.B.; **Song,T.**; Lou, X.W.; Paik, U., Porosity-Controlled TiNb₂O₇ Microspheres with Partial Nitridation as A Practical Negative Electrode for High-Power Lithium-ion Batteries, Advanced Energy Materials, 2015, 5.

[38] L. Liu*, **T. Song***, H. Han, H. Park, J. Xiang, Z. Liu, Y. Feng, and U. Paik., Electrospun

Sn-doped $\text{LiTi}_2(\text{PO}_4)_3/\text{C}$ nanofibers for ultra-fast charging and discharging, *Journal of Materials Chemistry A*, 2015, 3, 10395-10402 (*equally contributed)

[39] Han, H., Park, H., Kil, K.C., Jeon, Y., Ko, Y., Lee, C., Kim, M., Cho, C.-W., Kim K., Paik, U., **Song, T.**, Microstructure control of the graphite anode with a high density for Li ion batteries with high energy density, *Electrochimica Acta*, 2015, 166, 367-371

[40] Park, H.; **Song, T.**; Paik, U., Porous TiNb_2O_7 Nanofibers decorated with conductive $\text{Ti}_{1-x}\text{Nb}_x\text{N}$ bumps as a High Power Anode Material for Li-ion Batteries, *Journal of Materials Chemistry A*, 2015, 3, 8590-8596

[41] Sudhagar, P.*; **Song, T.***; Devadoss, A.; Lee, J. W.; Haro, M.; Terashima, C.; Lysak, V. V.; Bisquert, J.; Fujishima, A.; Gimenez, S.; Paik, U., Modulating the interaction between gold and TiO_2 nanowires for enhanced solar driven photoelectrocatalytic hydrogen generation, *Physical Chemistry Chemical Physics*, 2015, 17, 19371 (*equally contributed)

[42] L. Liu*, **T. Song***, H. Han, H. Park, J. Xiang, Z. Liu, Y. Feng, and U. Paik., Electrospun porous lithium manganese phosphate-carbon nanofibers cathode material for lithium ion batteries, *Journal of Materials Chemistry A*, 2015, 3, 17713 (*equally contributed)

[43] J. Wan, **T. Song**, C. Flox, J. Yang, Q. Yang, X. Han, *Advanced Nanomaterials for Energy-Related Applications*, *Journal of Nanomaterials*, 2015, Article ID 564097

[44] **Song, T.**; Graphene – tapered ZnO nanorods array as a flexible antireflection layer, *Journal of Nanomaterials*, 2015, Article ID 925863

[45] J.H. Kim, S. Lee, J. Choi, **T. Song**, U. Paik, H. Han, H. Park, J. Xiang, Z. Liu, Y. Feng, and U. Paik., Stackable, Three Dimensional Carbon-Metal Oxide Composite for High Performance Supercapacitors, *Journal of Materials Chemistry A*, 2015,3, 20459-20464

[46] Xia, F., Kwon, S., Lee, W.W., Liu, Z., Kim, S., **Song, T.**, Choi, K.J., Paik, U., Park, W.I., Graphene as an Interfacial Layer for Improving Cycling Performance of Si Nanowires in Lithium-Ion Batteries, *Nano Letters*, 2015, 15, 6658-6664

[47] **Song, T.**, Choi, J., Paik, U., Freestanding rGO-SWNT-STN Composite Film as an Anode for Li Ion Batteries with High Energy and Power Densities, *Nanomaterials*, 2015, 5, 2380-2390

[48] Kim, J. H., Lee, S., Choi, J., **Song, T.**, Paik, U., Stackable, three dimensional carbon-metal oxide composite for high performance supercapacitors, *Journal of Materials Chemistry A*, 2015, 3, 20459

[49] **Song, T.**, Paik, U., TiO_2 as an active or supplemental material for lithium batteries, *nanomaterials*, *Journal of Materials Chemistry A*, 2016, 4, 14

[50] Choi, H., Shin, D., Yeo, B.C., **Song, T.**, Han, S.S., Park, N., Kim, S., Simultaneously controllable doping sites and the activity of a W-N co-doped TiO_2 photocatalyst, *ACS Catalysis*, 2016, 6, 2745-2753

[51] P. Sudhagar, I. Herraiz-Cardona, H. Park, **T. Song**, S. H. Noh, S. Gimenez, I. M. Sero, F. Fabregat-Santiago, J. Bisquert, C. Terashima, U. Paik, Y. S. Kang, A. Fujishima, T. H. Han, Exploring Graphene Quantum Dots/ TiO_2 interface in photoelectrochemical reactions: Solar to fuel conversion, *Electrochimica Acta*, 2016, 187, 249-255

[52] Z. Liu*, **Song, T.***, J. H. Kim, Z. Li, J. Xiang, T. Lu, U. Paik, Partially reduced SnO_2 nanoparticles anchored on carbon nanofibers for high performance sodium-ion batteries, *Electrochemistry Communications*, 2016, 72, 91-95 (*equally contributed)

[53] Y. Jeon, X. Han, K. Fu, J. Dai, J. H. Kim, L. Hu, **Song, T.***, U. Paik*, Flash-Induced Reduced Graphene Oxide as Sn Anode Hosts for High Performance Sodium Ion Batteries, *Journal of Materials Chemistry A*, 2016,4, 18306-18313 (*corresponding authors)

[54] J. Choi, P. Sudhagar, J. H. Kim, J. Kwon, J. Kim, C. Terashima, A. Fujishima, **T. Song***, U. Paik*, $\text{WO}_3/\text{W}:\text{BiVO}_4/\text{BiVO}_4$ graded photoabsorber electrode for enhanced

photoelectrocatalytic solar light driven water oxidation, *Physical Chemistry Chemical Physics*, 2017, 19, 4648-4655 (*corresponding authors)

[55] S. Khan, H. Cho, D. Kim, S. S. Han, K. H. Lee, S. Cho*, **T. Song***, H. Choi*, Defect engineering toward strong photocatalysis of Nb-doped anatase TiO₂: Computational predictions and experimental verifications, *Applied Catalysis B: Environmental*, 2017, 206, 520-530 (*corresponding authors)

[56] H. Park, D. H. Shin, **Song, T.***, W. Park*, U. Paik*, Synthesis of Hierarchically Porous TiNb₂O₇ Nanotubes with Controllable Porosity and Their Application in High Power Li-Ion Batteries, *Journal of Materials Chemistry A*, 2017, A 5 (15), 6958-6965 (*corresponding authors)

[57] Z. Liu, T. Lu, **T Song**, X. Yu, X. Lou, U. Paik*, Structure-designed synthesis of FeS₂@C yolk-shell nanoboxes as a high-performance anode for sodium-ion batteries, *Energy & Environmental Science*, Accepted

[58] H. Cho, H. Son, D. Kim, M. Lee, S. Boateng, H Han, K. M. Kim, S. Kim, H. Choj*, **T. Song***, K. H. Lee*, Impact of Mg-Doping Site Control in the Performance of Li₄Ti₅O₁₂ Li-Ion Battery Anode: First-Principles Predictions and Experimental Verifications, *Journal of Physical Chemistry C*, Accepted (*corresponding authors)

[59] F. Hu, **T. Song***, Application of Functionalized Ether in Lithium Ion Batteries, *RSC Advances*,

[60] A. Indra, U. Paik, **T. Song***, Boosting Electrochemical Water Oxidation with Metal Hydroxide Carbonate Templated Prussian Blue Analogues Batteries, *RSC Advances*,

[61] J. Choi, P.J. Kim, J. Seo, J. Kwon, S. Lee, **T. Song***, Environmentally-harmless polylactic acid-polyethylene glycol binder for deformable ceramic green body, *RSC Advances*,

[62] HS. Han, K. Kim, CW. Lee, C. S. Lee, R. Pawar, J. Jones, YR Hong, J. Ryu, **T. Song**, S. Kang, H. Choi and S. Mhin, Few-layered metallic 1T-MoS₂/TiO₂ with exposed (001) facets: two-dimensional nanocomposites for enhanced photocatalytic activities, *Physical Chemistry Chemical Physics*,

[63] J. Xiang, **T. Song***, One-pot synthesis of multicomponent (Mo, Co) metal sulfide/carbon nanoboxes as anode materials for improving Na-ion storage, *ChemComm*,

[64] J. Choi, Patrick J. Kim, J. Seo, J. Kwon, S. Lee, **T. Song***, Toward Functional 3D Architected Platform: Advanced Approach to Anchor Functional Metal Oxide onto 3D Printed Scaffold, *Advanced Engineering Materials*,

[65] S. Dutta, A. Indra, Y. Feng, **T. Song**, U. Paik*, Self-Supported Nickel Iron Layered Double Hydroxide-Nickel Selenide Electrocatalyst for Superior Water Splitting Activity. *ACS Applied Materials & Interfaces*, 2017, 9, 33766-33774.

[66] K. You, J. Seo, P. J. Kim, **T. Song***, Control of Tungsten Protrusion with Surface Active Agent during Tungsten Chemical Mechanical Polishing. *ECS Journal of Solid State Science & Technology*, 2017, 6, P822-NaN.

[67] H. Park, J. Kwon, H. Choi, **T. Song***, U. Paik*, Microstructural control of new intercalation layered titanoniobates with large and reversible d-spacing for easy Na⁺ ion uptake. *Science Advances*, 2017, 3, 1-10.

[68] H. Park, D. Shin, U. Paik, **T. Song***, Dielectric Polarization of a High-Energy Density Graphite Anode and Its Physicochemical Effect on Li-Ion Batteries. *Industrial and Engineering Chemistry Research*, 2017, 56, 13776.

[69] J. Xiang, **T. Song***, U. Paik*, Rational design of Au dotted Co₃O₄ nanosheets as an efficient bifunctional catalyst for Li-oxygen batteries. *RSC Advances*, 2017, 7, 51652.

[70] K. Kim, **T. Song***, K. Lee, J. Seo, Communication — Reduction of friction force between

ceria and SiO₂ for low dishing in STI CMP. ECS Journal of Solid State Science and Technology, 2017, 6, P752.

[71] J. Kim, Y. Jung, S. Hwang, Y. Kim, D. Shin, **T. Song***, U. Paik*, LiCl-LiI molten salt electrolyte with bismuth-lead positive electrode for liquid metal battery. JOURNAL OF POWER SOURCES, 2018, 377, p87-92.

[72] K. Kim, S. So, S. Cho, M. Lee, K. You, **T. Song***, K. Lee, J. Moon, Fenton-Like Reaction between Copper Ions and Hydrogen Peroxide for High Removal Rate of Tungsten in Chemical Mechanical Planarization. ECS JOURNAL OF SOLID STATE SCIENCE AND TECHNOLOGY, 2018, 7, P91-NaN.

[73] H. Han, Y. Jeon, Z. Liu, **T. Song***, Highly Graphitic Carbon Nanofibers Web as a Cathode Material for Lithium Oxygen Batteries. APPLIED SCIENCES-BASEL, 2018, 8, undefined.

[74] M. Z. Ansari, S. A. Ansari, N. Parveen, M. H. Cho, **T. Song***, Lithium ion storage ability, supercapacitor electrode performance, and photocatalytic performance of tungsten disulfide nanosheets. New Journal of Chemistry, 2018, 42, p5859-5867.

[75] K. Kim, K. Lee, S. So, S. Cho, M. Lee, K. You, J. Moon, **T. Song***. Communication—Selective Adsorption of PEG on SiO₂ for High Removal Selectivity in Tungsten CMP. ECS Journal of Solid State Science and Technology. 2018, 7(3), p132-4

[76] Z. Liu, **T. Song***, U. Paik. Communication—Sb-based electrode materials for rechargeable batteries. Journal of Materials Chemistry A. 2018, 6 (18), p8159-8193.

[77] Z. Liu, F. Hu, J. Xiang, C. Yue, D. Lee, **T. Song***. A Nano-Micro Hybrid Structure Composed of Fe₇S₈ Nanoparticles Embedded in Nitrogen-Doped Porous Carbon Framework for High-Performance Lithium/Sodium-Ion Batteries. Particle & Particle Systems Characterization. 2018, 35 (8), p1800163.

[78] H. Choi, S. Moon, **T. Song***, S. Kim. Hydrogen-free defects in hydrogenated black TiO₂. Physical Chemistry Chemical Physics. 2018, 20, p19871.

[79] H. Han, Y. Jeon, Z. Liu, **T. Song***, Highly Graphitic Carbon Nanofibers Web as a Cathode Material for Lithium Oxygen Batteries. Applied Sciences. 2018, 8 (2), p209

[80] H Park, J Kwon, H Choi, D Shin, **T. Song***, XWD Lou. Unusual Na⁺ Ion Intercalation/Deintercalation in Metal-Rich Cu_{1.8}S for Na-Ion Batteries. ACS nano. 2018, 12 (3), p2827-2837

[81] HS Han, KM Kim, H Choi*, G Ali, KY Chung, YR Hong, J Choi, J Kwon, S. Lee, J. Lee, J. Ryu, **T. song***, S.Mhim*. Parallelized Reaction Pathway and Stronger Internal Band Bending by Partial Oxidation of Metal Sulfide–Graphene Composites: Important Factors of Synergistic Oxygen Evolution Reaction Enhancement. ACS Catalysis. 2018, 8 (5), p4091-4102

[82] H Park, D Lee, **T. Song***. Synthesis of carboxymethyl cellulose lithium by weak acid treatment and its application in high energy-density graphite anode for Li-ion batteries. Industrial & Engineering Chemistry Research. 2018, 57(27), p8895

[83] A Indra, **T. Song**, U Paik. Metal Organic Framework Derived Materials: Progress and Prospects for the Energy Conversion and Storage. Advanced Materials. 2018, 30 (39), p1705146

[84] I Jang, S Kim, C Kim, H Yoon, **T. Song***. Enhancement of oxygen reduction reaction through coating a nano-web-structured La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-δ} thin-film as a cathode/electrolyte interfacial layer for lowering the operating temperature of solid oxide fuel cells. Journal of Power Sources. 2018, 392, p123-128

[85] J Choi, **T. Song***, J Kwon, S Lee, H Han, N Roy, C Terashima, A Fujishima. U. Paik, S. Pitchaimuthu. WO₃ nanofibrous backbone scaffolds for enhanced optical absorbance and charge transport in metal oxide (Fe₂O₃, BiVO₄) semiconductor photoanodes towards solar

fuel generation. *Applied Surface Science*. 2018, 447, p331-337

[86] F Hu, Z Liu, C Yue, J Xiang, **T. Song***. Facile fabrication of flower-like C@ α -Mo₂C hybrids with enhanced energy storage properties. *ChemistrySelect*. 2018, 3 (28), p8395-8401

[87] J Xiang, Z Liu, **T. Song***. Bi@C nanoplates derived from (BiO)₂CO₃ as an enhanced electrode material for lithium/sodium-ion batteries. *ChemistrySelect*. 2018, 3 (31), p8973-8979

[88] WJ Chang, SH Kim, J Hwang, J Chang, D won Yang, SS Kwon, JT Kim, W. Lee, H. Park, **T. song** I. Lee, D. Whang, W. Park. Controlling electric potential to inhibit solid-electrolyte interphase formation on nanowire anodes for ultrafast lithium-ion batteries. *Nature communications*. 2018, 9 (1), p3461

[89] J Xiang, Z Liu, **T. Song***. Hierarchical iron sulfide-graphene nanocubes consisting of multiple nanoparticles with superior sodium ion storage properties. *Electrochimica Acta*. 2018, 25 283, p683-690

[90] YR Hong, S Mhin, J Kwon, WS Han, **T. Song***, HS Han. Synthesis of transition metal sulfide and reduced graphene oxide hybrids as efficient electrocatalysts for oxygen evolution reactions. *Royal Society Open Science*. 2018, 5 (9), p180927

[91] C Yue, Z Liu, WJ Chang, WI Park, **T. Song***. Hollow C nanobox: An efficient Ge anode supporting structure applied to high-performance Li ion batteries. *Electrochimica Acta*. 2018, 290, p236-243

[92] S Dutta, A Indra, HS Han, **T. Song***. An intriguing pea-like nanostructure of cobalt phosphide on molybdenum carbide incorporated nitrogen-doped carbon nanosheets for efficient electrochemical water Splitting. *ChemSusChem*. 2018, 11 (22), p3956-3964

[93] J Xiang, Z Liu, **T. Song***. Sandwich-like graphene-Bi₂S₃ hybrid derived from (BiO)₂CO₃ nanosheets as advanced anode materials for lithium/sodium ion batteries. *Journal of Alloys and Compounds*. 2018, 768, p426-432

[94] Z Liu, C Yue, C Chen, J Xiang, F Hu, D Lee, D Shin, S Sun, L Hu, **T. Song***. A self-buffering structure for application in high-performance sodium-ion batteries. *Energy Storage Materials*. 2018, 15, p242-248

[95] S Dutta, Z Liu, HS Han, A Indra, **T. Song***. Electrochemical energy conversion and storage with zeolitic imidazolate framework derived materials: A Perspective. *ChemElectroChem*. 2018, 5 (23), p3571-3588

[96] S Dutta, A Indra, Y Feng, HS Han, **T. Song***. Promoting Electrocatalytic Overall Water Splitting with Nanohybrid of Transition Metal Nitride-Oxynitride. *Applied Catalysis B: Environmental*. 2019, 241, p521-527

[97] Y Feng, HS Han, KM Kim, S Dutta, **T. Song*** Self-templated Prussian blue analogue for efficient and robust electrochemical water oxidation. *Journal of Catalysis*. 2019. 369, p168-174

[98] Y Hong, S Mhin, K Kim, WS Han, H Choi, G Ali, KY Chung, HJ Lee, SI Moon, S Dutta, S Sun, YG Jung, **T. Song***, HS Han* Electrochemically activated cobalt nickel sulfide for an efficient oxygen evolution reaction: partial amorphization and phase control. *Journal of Materials Chemistry A*. 2019

[99] H Park, D Lee, **T. Song*** High capacity monoclinic Nb₂O₅ and semiconducting NbO₂ composite as high-power anode material for Li-Ion batteries. *Journal of Power Sources*. 2019. 414, p377-382

[100] K Park, S Myeong, D Shin, CW Cho, SC Kim, **T. Song*** Improved swelling behavior of Li ion batteries by microstructural engineering of anode. *Journal of Industrial and Engineering Chemistry*. 2019, 71, p270-276

[101] H Han, Y Hong, J Woo, S Mhin, K Kim, J Kwon, H Choi*, Y Chung*, **T. Song***

Electronically Double-Layered Metal Boride Hollow Nanoprism as an Excellent and Robust Water Oxidation Electrocatalysts. *Advanced Energy Materials*. 2019, 9(13), p1803799

[102] C Kim, S Kim, I Jang, H Yoon* **T. Song***, U Paik*. Facile fabrication strategy of highly dense gadolinium-doped ceria/yttria-stabilized zirconia bilayer electrolyte via cold isostatic pressing for low temperature solid oxide fuel cells. *Journal of Power Sources*. 2019, 415, p112-118

[103] S Kang, K Kim*, Y Son, S Mhin, J Ryu, K Shim, B Lee, H Han*, **T.Song***. Graphene Oxide Quantum Dots Derived from Coal for Bioimaging: Facile and Green Approach. *Scientific reports*. 2019, 9(1), p4101

[104] D Lee, H Park, A Goliaszewski, Y Byeun, **T.Song***, U Paik. In Situ Crosslinked Carboxymethyl Cellulose-Polyethylene Glycol Binder for Improving the Long-Term Cycle Life of Silicon Anodes in Li Ion Batteries. *Industrial & Engineering Chemistry Research*. 2019

[105] S Bandyopadhyay, D Boukhvalov, A Nayak, S Ha, H Shin, J Kwon, **T.Song** , H Choi*. Redox active nitrogen-containing conjugated porous polymer: An organic heterogeneous electrocatalysts for oxygen reduction reaction. *Dyes and Pigments*. 2019, p107557

[106] H Han, H Choi, S Mhin, Y Hong, K Kim, J Kwon, G Ali, K Chung, M Je, H Um, D Lim, K Davey, S Qiao*, U Paik*, **T. Song***. Advantageous Crystalline-Amorphous Phase Boundary for Enhanced Electrochemical Water Oxidation. *Energy & Environmental Science*. 2019

BOOK

[1] Handbook of Nanoscience, Engineering, and Technology (Chapter 23: Nanostructured Materials for Energy Storage), Hansu Kim, Taeseup Song, Ungyu Paik, **CRC Press**, (2012.06.12)