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Education

Ph.D.	Materials Science and Engineering , Seoul National University, Korea Advisor: Prof. Kisuk Kang Thesis: High-capacity Layered Oxides and Organic Compounds as Cathode Materials for Lithium Rechargeable Batteries.	03/2011 ~ 02/2015
M.S.	Materials Science and Engineering , KAIST, Korea Advisor: Prof. Kisuk Kang Thesis: Electrochemical Behavior of Layered Li-excess Transition Metal Oxide in Li Rechargeable Battery.	03/2009 ~ 02/2011
B.S.	Materials Science and Engineering , KAIST, Korea <i>Summa cum laude</i>	09/2005 ~ 02/2009

Experience

Korea Institute of Science and Technology, Center for Energy Materials Research	Seoul, Korea
- Senior Research Scientist	01/2019 ~ present
Korea Institute of Science and Technology, HT Energy Materials Research Center	Seoul, Korea
- Senior Research Scientist	07/2018 ~ 12/2018
Stanford University, Materials Science and Engineering	Stanford, USA
- Postdoctoral Fellow (advisor: Prof. William C. Chueh)	05/2016 ~ 06/2018
SLAC National Accelerator Laboratory, Stanford Synchrotron Radiation Lightsource	Menlo Park, USA
- Postdoctoral Fellow (advisor: Dr. Michael F. Toney)	05/2016 ~ 06/2018
Seoul National University, Department of Materials Science and Engineering	Seoul, Korea
- Postdoctoral Fellow (advisor: Prof. Kisuk Kang)	03/2015 ~ 04/2016

Research Interests

- **Research goal:** Precise and comprehensive understanding of energy storage mechanisms of materials in rechargeable batteries or solid-state hydrogen storage system using multi-scale characterization.
- **Systems of interest:** Li/Na/K rechargeable batteries, aqueous multivalent batteries, organic batteries, redox flow batteries, conventional batteries, hydrogen storage alloys.
- **Multi-scale characterization:** Electrochemistry, phase behavior, redox mechanisms of electrode materials in multi-scales from atomic level (DFT calculations, XRD/ND Rietveld refinement, PDF analysis), nano-micron scale (Synchrotron microscopy) to electrode level (many body particles) by combined *ex situ/operando* characterizations.
- **Controlled electrochemical system for model study:** Microstructure (facet-, shape-, ion diffusion path- controlled particles) and chemistry (transition metal stoichiometry, lithium composition) control for fundamental and comparative study.

Honors and Awards

- *Park Su-Moon's Award*, The Korean Electrochemical Society, 2021
- *MRS Graduate Student Award*, Silver Award, Materials Research Society, 2015
- *Best Poster Award*, Materials Research Society, 2015
- *Global Ph.D. Fellowship* (\$30,000/year), Grant by Korean government, 2011-2014
- *Paper Presentation Award*, The Korean Electrochemical Society, 2014
- *Grand prize*, Best poster award, Nano Korea, 2014
- *Best Poster Award*, Korean Battery Society, 2014
- *Paper Presentation Award*, The Korean Electrochemical Society, 2012
- *National Research Fellowship for Science and Engineering Graduates* (\$10,000/year), Grant by Korean government, 2009-2010
- *Graduated Summa cum laude*, KAIST, 2009
- *Presidential Science Scholarship* (\$10,000/year), Grant by Korean government, 2005-2008

Peer-reviewed Publications

First and Corresponding Authored

1. J. Choi, H. Jeong*, J. Jang, A.-R. Jeon, I. Kang, M. Kwon, **J. Hong***, M. Lee* “Weakly solvating solution enables chemical prelithiation of graphite–SiO_x anodes for high-energy Li-ion batteries.” *Journal of the American Chemical Society* 2021, 143, 9169-9176, *Co-correspondence
2. M. Cho, S. H. Song, S. Hong, K. S. Kim, M. Avdeev, J.-G. Yoo, K.-T. Ko, **J. Hong***, J. Kim*, S. Lee*, H. Kim “Critical role of Ti⁴⁺ in stabilizing high-voltage redox reactions in Li-rich layered material.” *Small* 2021, 17, 2100840, *Co-correspondence
3. J. Park[†], H. Zhao[†], S. Kang[†], K. Lim, C.-C. Chen, Y.-S. Yu, R. Braatz, D. Shapiro, **J. Hong***, M. Toney, M. Bazant*, W. Chueh* “Fictitious phase separation in Li layered oxides driven by electro-autocatalysis.” *Nature Materials* 2021, 20, 991-999, *Co-correspondence
4. S. Lee[†], I. Kang[†], J. Kim, S. Kim, K. Kang*, **J. Hong*** “Real-time visualization of Zn metal plating/stripping in aqueous batteries with high areal capacities.” *Journal of Power Sources* 2020, 472, 228334 *Co-correspondence
5. S. Lee, **J. Hong***, K. Kang* “Redox-active organic compounds for future sustainable energy storage system.” *Advanced Energy Materials* 2020, 10, 2001445 [10 years of advanced energy materials] *Co-correspondence
6. J. Jang[†], I. Kang[†], J. Choi, H. Jeong, K.-W. Yi, **J. Hong***, M. Lee* “Molecularly tailored lithium-arene complex enables chemical prelithiation of high-capacity lithium-ion battery anodes.” *Angewandte Chemie International Edition* 2020, 59, 14473-14480 [featured as hot paper][inside front cover article] *Co-correspondence
7. **J. Hong[†]**, W. E. Gent[†], P. Xiao, K. Lim, D.-H. Seo, J. Wu, P. M. Csernica, C. J. Takacs, D. Nordlund, C.-J. Sun, K. H. Stone, W. Yang, D. Prendergast, G. Ceder, W. C. Chueh, M. F. Toney “Metal-oxygen decoordination stabilizes anion redox in Li-rich oxides.” *Nature Materials* 2019, 3, 256-265, [†]Co-first authors
8. S. Lee[†], J. E. Kwon[†], **J. Hong[†]**, S. Y. Park, K. Kang, “Role of Substituents in Determining Redox Potential of Organic Electrode Materials in Li and Na Rechargeable Batteries: Electronic Effects vs. Substituent-Li/Na Ionic Interaction” *Journal of Materials Chemistry A* 2019, 7, 11438-11443, [†]Co-first authors
9. K. Ku[†], **J. Hong[†]**, H. Kim, S.-K. Jung, G. Yoon, K.-Y. Park, H. Kim, K. Kang, “Suppression of voltage decay through manganese deactivation and nickel redox buffering in high-energy layered lithium-rich electrodes.” *Advanced Energy Materials* 2018, 180006, [†]Co-first authors
10. M. Lee[†], **J. Hong[†]**, B. Lee, K. Ku, S. Lee, C. B. Park, K. Kang, “Multi-electron redox phenazine for ready-to-charge organic batteries.” *Green Chemistry* 2017, 19, 2980-2985, [†]Co-first authors [2017 Green Chemistry hot article]
11. H. Kim[†], **J. Hong[†]**, G. Yoon[†], H. Kim, K.-Y. Park, M.-S. Park, W.-S. Yoon, K. Kang, “Sodium intercalation chemistry in graphite.” *Energy & Environmental Science* 2015, 8, 2963-2969 [featured as hot paper][back cover article] [†]Co-first authors

12. **J. Hong**[†], H. Gwon[†], S.-K. Jung[†], K. Ku[†], K. Kang, “lithium-excess layered cathodes for lithium rechargeable batteries.” *Critical Reviews in Electrochemistry and Solid-State Science and Technology (CRES3T) Battery Special of Journal of the Electrochemical Society* 2015, 162, A2447-A2467. [†]Co-first authors
13. **J. Hong**[†], M. Lee[†], B. Lee, D.-H. Seo, C. B. Park, K. Kang, “Biologically inspired pteridine redox centers for rechargeable batteries.” *Nature Communications* 2014, 5, 5335. [†]Co-first authors
14. H. Kim[†], **J. Hong**[†], K.-Y. Park[†], H. Kim[†], S.-W. Kim, K. Kang, “Aqueous rechargeable Li and Na ion batteries.” *Chemical Reviews* 2014, 114, 11788-11827. [†]Co-first authors **[cover article]**
15. M. Lee[†], **J. Hong**[†], H.-D. Lim, S. B. Cho, K. Kang, C. B. Park, “Organic nanohybrids for fast and sustainable energy storage.” *Advanced Materials* 2014, 26, 2558-2565. [†]Co-first authors **[back cover article]**
16. M. Lee[†], **J. Hong**[†], D.-H. Seo, D. H. Nam, K. T. Nam, K. Kang, C. B. Park, “Redox cofactor from biological energy transduction as molecularly tunable energy-storage compound.” *Angewandte Chemie Int. Ed.* 2013, 52, 8322-8328. [†]Co-first authors **[cover article]**
17. **J. Hong**, H.-D. Lim, M. Lee, S.-W. Kim, H. Kim, S. T. Oh, G. C. Chung, K. Kang, “Critical role of oxygen evolved from layered Li-excess metal oxides in lithium rechargeable batteries.” *Chemistry of Materials* 2012, 24, 2692-2697.
18. **J. Hong**, D.-H. Seo, S.-W. Kim, H. Gwon, S. T. Oh, and K. Kang, “Structural evolution of layered $\text{Li}_{1.2}\text{Ni}_{0.2}\text{Mn}_{0.6}\text{O}_2$ upon electrochemical cycling in a Li rechargeable battery.” *Journal of Materials Chemistry* 2010, 20, 10179-10186.

[First and corresponding authored papers featured as journal covers]



Co- Authored

Lithium ion batteries

1. K.-Y. Park, **J. Hong**, W.M. Sung, J.-J. Kim, K. Ku, B. Lee, K. Kang, “Trackable galvanostatic history in phase separation based electrodes for lithium-ion batteries; mosaic sub-grouping intercalation model.” *Energy & Environmental Science* 2017, 10, 2352-2364. **[2017 Energy and Environmental Science hot article]**
2. H. Gwon, **J. Hong**, H. Kim, D.-H. Seo, S. Jeon, K. Kang, “Recent progress on flexible lithium rechargeable batteries.” *Energy & Environmental Science* 2014, 7, 538-551.
3. K.-Y. Park, **J. Hong**, J. Kim, Y.-U. Park, H. Kim, D.-H. Seo, S.-W. Kim, J.-W. Choi, K. Kang, “Factors that affect the phase behavior of multi-component olivine ($\text{LiFe}_x\text{Mn}_y\text{Co}_{1-x-y}\text{PO}_4$; $0 < x, y < 1$) in lithium rechargeable batteries: One-phase reaction vs. two-phase reaction.” *Journal of the Electrochemical Society* 2013, 160, A444-A448.
4. S.-K. Jung, H. Gwon, **J. Hong**, K.-Y. Park, D.-H. Seo, H. Kim, J. Hyun, W. Yang, K. Kang, “Understanding the degradation mechanisms of $\text{LiNi}_{0.5}\text{Co}_{0.2}\text{Mn}_{0.3}\text{O}_2$ cathode material in lithium ion batteries.” *Advanced Energy Materials* 2014, 4, 1.
5. J. W. Ko, S.-W. Kim, **J. Hong**, J. Ryu, K. Kang, C. B. Park, “Synthesis of graphene-wrapped CuO hybrid materials by CO_2 mineralization.” *Green Chemistry* 2012, 14, 2391-2394.
6. H. Kim, S.-W. Kim, **J. Hong**, Y.-U. Park, K. Kang, “Electrochemical and ex-situ analysis on manganese oxide/graphene hybrid anode for lithium rechargeable batteries.” *Journal of Materials Research* 2011, 26, 2665-2671.
7. H. Kim, S.-W. Kim, **J. Hong**, H.-D. Lim, H. Kim, J.-K. Yoo, K. Kang, “Graphene-based hybrid electrode material

- for high-power lithium-ion batteries.” *Journal of the Electrochemical Society* 2011, 158, A930-A935.
8. S. Kalirai, K. Lim, B. Enders, **J. Hong**, W. E. Gent, A. Deva, E. R. Garcia, Y.-S. Yu, R. Celestre, M. F. Toney, D. A. Shapiro, W. C. Chueh, “Understanding chemomechanical Li-ion cathode degradation through multi-scale, multi-modal X-ray spectromicroscopy.” *Microscopy and Microanalysis* 2018, 24, 426-427.
 9. H. Gwon, S.-W. Kim, Y.-U. Park, **J. Hong**, G. Ceder, S. Jeon, K. Kang, “Ion-exchange mechanism of layered transition metal oxides: A case study of $\text{LiNi}_{0.5}\text{Mn}_{0.5}\text{O}_2$.” *Inorganic Chemistry* 2014, 53, 8083-8087.
 10. S.-W. Kim, K.-W. Nam, D.-H. Seo, **J. Hong**, H. Kim, H. Gwon, K. Kang, “Energy storage in composites of a redox couple host and a lithium ion host.” *Nano Today* 2012, 7, 168-173.
 11. D.-H. Seo, H. Kim, I. Park, **J. Hong**, K. Kang, “Polymorphism and phase transformations of $\text{Li}_{2-x}\text{FeSiO}_4$ ($0 \leq x \leq 2$) from first principles.” *Physical Review B* 2011, 84, 220106.
 12. H. Kim, K.-Y. Park, M.-Y. Cho, M.-H. Kim, **J. Hong**, S.-K. Jung, K.C. Roh, K. Kang, “High-performance hybrid supercapacitor based on graphene-wrapped $\text{Li}_4\text{Ti}_5\text{O}_{12}$ and activated carbon.” *ChemElectroChem* 2014, 1, 125-130.
 13. K.-Y. Park, I. Park, H. Kim, H.-D. Lim, **J. Hong**, J. Kim, K. Kang, “Anti-site reordering in LiFePO_4 : Defect annihilation on charge carrier injection.” *Chemistry of Materials* 2014, 26, 5345-5351.
 14. J.-K. Yoo, J. Kim, M.-J. Choi, Y.-U. Park, **J. Hong**, K.M. Baek, K. Kang, Y.S. Jung, “Extremely high-yield conversion from low-cost sand to high-capacity Si electrodes for Li-ion batteries.” *Advanced Energy Materials* 2014, 4, 16.
 15. H. Kim, D.-H. Seo, H. Kim, I. Park, **J. Hong**, K.-Y. Park, K. Kang, “Multicomponent effects on the crystal structures and electrochemical properties of spinel-structured M_3O_4 (M= Fe, Mn, Co) anodes in lithium rechargeable batteries.” *Chemistry of Materials* 2012, 24, 720-725.
 16. J. Kim, K.-Y. Park, I. Park, J.-K. Yoo, **J. Hong**, K. Kang, “Thermal stability of Fe–Mn binary olivine cathodes for Li rechargeable batteries.” *Journal of Materials Chemistry* 2012, 22, 11964-11970.
 17. S. H. Song, M. Cho, I. Park, J.-G. Yoo, K.-T. Ko, **J. Hong**, J. Kim, S.-K. Jung, M. Avdeev, S. Ji, S. Lee, J. Bang, H. Kim, “High-voltage-driven surface structuring and electrochemical stabilization of Ni-rich layered cathode materials for Li rechargeable batteries.” *Advanced Energy Materials* 2020, 10, 2000521.
 18. K. Ku, B. Kim, S.-K. Jung, Y. Gong, D. Eum, G. Yoon, K.-Y. Park, **J. Hong**, S.-P. Cho, D.-H. Kim, H. Kim, E. Jeong, L. Gu, K. Kang, “A new lithium diffusion model in layered oxides based on asymmetric but reversible transition metal migration.” *Energy & Environmental Science* 2020, 13, 1269-1278.
 19. W. E. Gent, K. Lim, Y. Liang, Q. Li, T. Barnes, S.-J. Ahn, K. Stone, M. McIntire, **J. Hong**, J. H. Song, Y. Li, A. Mehta, S. Ermon, T. Tylliszczak, A. Kilcoyne, D. Vine, J.-H. Park, S.-G. Doo, M. F. Toney, W. Yankg, D. Prendergast, W. C. Chueh, “Coupling between oxygen redox and cation migration explains unusual electrochemistry in lithium-rich layered oxides.” *Nature Communications* 2017 [#NCOMMS-17-23219B]
 20. Y. Li, H. Chen, K. Lim, H. D. Deng, J. Lim, D. Fraggadakis, P. M. Attia, S. C. Lee, N. Jin, J. Moskon, Z. Guan, W. E. Gent, **J. Hong**, Y.-S. Yu, M. Gaberscek, M. S. Islam, M. Z. Bazant, W. C. Chueh, “Fluid-enhanced surface diffusion controls intraparticle phase transformations.” *Nature Materials* 2018, 17, 915-922.

Sodium ion batteries

1. M. Lee, **J. Hong**, J. Lopez, Y. Sun, D. Feng, K. Lim, W. C. Chueh, M. F. Toney, Y. Cui, Z. Bao, “High-performance sodium–organic battery by realizing four-sodium storage in disodium rhodizonate.” *Nature Energy* 2017, 2, 861-868.
2. H. Kim, **J. Hong**, Y.-U. Park, J. Kim, I. Hwang, K. Kang, “Sodium storage behavior in natural graphite using ether-based electrolyte systems.” *Advanced Functional Materials* 2015, 25, 534-541.
3. H. Kim, J. E. Kwon, B. Lee, **J. Hong**, M. Lee, S. Y. Park, K. Kang, “High energy organic cathode for sodium rechargeable batteries.” *Chemistry of Materials* 2015, 27, 7258-7264.
4. H. Kim, Y.-U. Park, K.-Y. Park, H.-D. Lim, **J. Hong**, K. Kang, “Novel transition-metal-free cathode for high

energy and power sodium rechargeable batteries.” *Nano Energy* 2014, 4, 97-104.

5. W. Ko, J.-K. Yoo, H. Park, Y. Lee, I. Kang, J. Kang, J. H. Jo, J. U. Choi, **J. Hong**, S.-T. Myung, J. Kim, “Exceptionally high-energy tunnel-type $V_{1.5}Cr_{0.5}O_{4.5}H$ nanocomposite as a novel cathode for Na-ion batteries.” *Nano Energy* 2020, 77, 105175.
6. H. Park, Y. Lee, M. Cho, J. Kang, W. Ko, Y. H. Jung, T.-Y. Jeon, **J. Hong**, H. Kim, S.-T. Myung, J. Kim, “ $Na_2Fe_2F_7$: a fluoride-based cathode for high power and long life Na-ion batteries.” *Energy & Environmental Science* 2021, 14, 1469-1479.

Transition metal-free rechargeable batteries

1. S. Lee, **J. Hong**, S.-K. Jung, K. Ku, G. Kwon, W.M. Seong, H. Kim, G. Yoon, I. Kang, K. Hong, H.W. Jang, K. Kang, “Charge-transfer complexes for high-power organic rechargeable batteries.” *Energy Storage Materials* 2019, 20, 462. **[cover article]**
2. H. Kim, K.-Y. Park, **J. Hong**, K. Kang, “All-graphene-battery: bridging the gap between supercapacitors and lithium ion batteries.” *Scientific Reports* 2014, 4, 5278.
3. E.-Y. Choi, T. H. Han, **J. Hong**, J. E. Kim, S. H. Lee, H. W. Kim, S.O. Kim, “Noncovalent functionalization of graphene with end-functional polymers.” *Journal of Materials Chemistry* 2010, 20, 1907-1912.
4. S. Lee, K. Lee, K. Ku, **J. Hong**, S. Y. Park, J. E. Kwon, K. Kang, “Utilizing latent multi-redox activity of p-type organic cathode materials toward high energy density lithium-organic batteries.” *Advanced Energy Materials* 2020, 10, 2001635.
5. H.-D. Lim, B. Lee, Y. Zheng, **J. Hong**, J. Kim, H. Gwon, Y. Ko, M. Lee, K. Cho, K. Kang, “Rational design of redox mediators for advanced $Li-O_2$ batteries.” *Nature Energy*, 2016, 1, 16066
6. H. Kim, H.-D. Lim, S.-W. Kim, **J. Hong**, D.-H. Seo, D. Kim, S. Jeon, S. Park, K. Kang, “Scalable functionalized graphene nano-platelets as tunable cathodes for high-performance lithium rechargeable batteries.” *Scientific reports* 2013, 3, 1506.
7. H.-D. Lim, K.-Y. Park, H. Gwon, **J. Hong**, H. Kim, K. Kang, “The potential for long-term operation of a lithium–oxygen battery using a non-carbonate-based electrolyte.” *Chemical Communications* 2012, 48, 8374-8376.
8. H. Kim, Y.-U. Park K.-Y. Park, H.-D. Lim, **J. Hong**, K. Kang, “Novel transition-metal-free cathode for high energy and power sodium rechargeable batteries.” *Nano Energy* 2014, 4, 97-104.
9. H.-K. Lim, H.-D. Lim, K.-Y. Park, D.-H. Seo, H. Gwon, **J. Hong**, W.A. Goddard III, H. Kim, K. Kang, “Toward a lithium–“air” battery: the effect of CO_2 on the chemistry of a lithium–oxygen cell.” *Journal of the American Chemical Society* 2013, 135, 9733-9742.
10. H.-D. Lim, H. Song, J. Kim, H. Gwon, Y. Bae, K.-Y. Park, **J. Hong**, H. Kim, T. Kim, Y. H. Kim, X. Lepro, R. Ovalle-Robles, R. H. Baughman, K. Kang, “Superior rechargeability and efficiency of $Li-O_2$ batteries: Hierarchical air-electrode architecture combined with a soluble catalyst.” *Angewandte Chemie Int. Ed.* 2014, 53, 3926-3931.
11. G. Kwon, S. Lee, J. Hwang, H.-S. Shim, B. Lee, M. H. Lee, Y. Ko, S.-K. Jung, K. Ku, **J. Hong**, K. Kang, “Multi-redox molecule for high-energy redox flow batteries.” *Joule* 2018, 2, 1-12.

Hydrogen storage and corrosion

1. H. Kim, M. Faisal, S.-I. Lee, J. Y. Jung, H.-J. Kim, **J. Hong**, Y.-S. Lee, J.-H. Shim, Y. W. Cho, D. H. Kim, J.-Y. Suh “Activation of Ti-Fe-Cr alloys containing identical AB_2 fractions.”” *Journal of Alloys and Compounds* 2021, 864, 158876.
2. J. Han, **J. Hong**, S. Kwon, H. C.-Yim “Effect of Cr Addition on Magnetic Properties and Corrosion Resistance of Optimized Co and Fe-Based Amorphous Alloys.” *Metals* 2021, 11, 304.
3. T. Ha, S.-I. Lee, **J. Hong**, Y.-S. Lee, D.-I. Kim, J.-Y. Suh, Y. W. Cho, B. Hwang, J. Lee, J.-H. Shim, “Hydrogen storage behavior and microstructural feature of a $TiFe-ZrCr_2$ alloy.” *Journal of Alloys and Compounds* 2021,

853, 157099.

Patents

1. **US 10217997 B2** “Positive electrode active material and lithium secondary battery including the same” (2019.02.26 Registered)
2. **US 10128502 B2** “Positive electrode active material and lithium secondary battery including the same” (2018.11.13 Registered)
3. **US 9570742 B2** “Positive electrode active material having improved safety and lifetime characteristics and lithium secondary battery comprising the same” (2017.02.14 Registered)
4. **JP 6483723 B2** “Positive electrode active material and lithium secondary battery including the same” (2019.11.18 Registered)
5. **JP 6490109 B2** “Positive electrode active material and lithium secondary battery including the same” (2019.03.27 Registered)
6. **JP 5984145 B2** “A manufacturing method of the lithium secondary battery whose safety and life characteristic improved” (2016.08.12 Registered)
7. **CN 106463715 B** “Positive electrode active material and lithium secondary battery comprising same” (2020.08.04 Registered)
8. **CN 106463715 B** “Positive electrode active materials and lithium secondary battery comprising it” (2019.08.06 Registered)
9. **KR 10-1675951** “Cathode active material and lithium secondary battery comprising the same” (2016.11.08 Registered)
10. **KR 10-1637898** “Cathode active material and lithium secondary battery comprising the same” (2016.07.04 Registered)
11. **KR 10-1572082** “Lithium transition metal oxide with high capacity and lithium secondary battery having the same” (2015.11.20 Registered)
12. **KR 10-1517870** “Electrode active materials containing heterocyclic compounds for lithium secondary batteries, and lithium secondary batteries containing the same” (2015.04.29 Registered)
13. **KR 10-1517864** “Nanohybrids of aromatic compound and carbon nanomaterials as electrodes for secondary batteries and secondary batteries containing the same” (2015.04.29 Registered)
14. **KR 10-1414955** “Positive-electrode active material with improved safety and lithium secondary battery including them” (2014.06.26 Registered)
15. **KR 10-1355842** “Lithium transition metal oxide with high capacity and lithium secondary battery having the same” (2014.01.21 Registered)

International Conference & Symposium

1. **J. Hong**, D.-H. Seo, S.-W. Kim, H. Gwon, Y.-U. Park, K. Kang, “Structural evolution of layered $\text{Li}_{1.2}\text{Ni}_{0.2}\text{Mn}_{0.6}\text{O}_2$ upon electrochemical cycling in a Li rechargeable battery” (Poster), International Meeting on Lithium Batteries (IMLB), Montreal, Canada (2010).
2. **J. Hong**, H.-D. Lim, M. Lee, S.-W. Kim, H. Kim, S.-T. Oh, G.-C. Chung, K. Kang, “Successive reactions of oxygen evolved from layered Li-excess metal oxides in lithium rechargeable batteries.” (Oral presentation), 2012 MRS Fall Meeting, Boston, USA (2012).
3. **J. Hong**[†], M. Lee[†], D.-H. Seo, D. H. Nam, K. T. Nam, C. B. Park, K. Kang, “Sustainable energy storage in flavins inspired by cellular energy metabolism for Li rechargeable battery.” (Oral presentation), 2013 MRS Fall

- Meeting, Boston, USA (2013).
4. M. Lee[†], **J. Hong**[†], H. Kim, S. B. Cho, K. Kang, C. B. Park, “High performance organic nanohybrid electrode based on biological redox cofactors.” (Poster), MRS Fall Meeting, Boston, USA (2013).
 5. M. Lee[†], **J. Hong**[†], D.-H. Seo, D. H. Nam, K. Kang, C. B. Park, “Vitamin battery: redox cofactor from biological energy transduction as energy-storage chemical.” (Oral Presentation), AFOB Regional Symposium, Malaysia (2014).
 6. **J. Hong**[†], M. Lee[†], H. Kim, D.-H. Seo, H-D Lim, K. Kang, C. B. Park, “Fast and sustainable energy storage in flavins inspired by biological energy metabolism for Li rechargeable batteries.” (Poster), 17th International Meeting on Lithium Batteries, Como, Italy (2014).
 7. **J. Hong**[†], M. Lee[†], B. Lee, D.-H. Seo, K.-Y. Park, G. Yoon, C. B. Park, K. Kang, “Pteridine redox centers inspired by biological energy metabolism for sustainable rechargeable batteries.” (Poster), 2015 MRS Spring Meeting, San Francisco, USA (2015). *Awarded by MRS graduate student award (silver award) and Best posters award.*
 8. I. Park, H. Kim, D.-H. Seo, **J. Hong**, Y.-U. Park, H. Kim, K. Kang, “First principles study on the $\text{Li}_x\text{Na}_{4-x}\text{M}_3(\text{PO}_4)_2(\text{P}_2\text{O}_7)$: A new iron-based mixed-polyanion cathodes for lithium and sodium rechargeable batteries.” (Oral presentation), MRS Fall Meeting, Boston, USA (2012).
 9. H. Kim, D.-H. Seo, H. Kim, I. Park, **J. Hong**, K.-Y. Park, K. Kang, “Metal substitution effects on the crystal structure and electrochemical properties of M_3O_4 (M=Mn, Fe, Co) anodes in lithium ion batteries” (Poster), International Meeting on Lithium Batteries (IMLB), Jeju, Korea (2012).
 10. H. Kim, Y.-U. Park, K.-Y. Park, H.-D. Lim, **J. Hong**, K. Kang, “Functionalized graphene cathode for high energy and power Na rechargeable batteries.” (Poster), International Meeting on Lithium Batteries (IMLB), Como, Italy (2014).
 11. K.-Y. Park, I. Park, H. Kim, H.-D. Lim, **J. Hong**, J. Kim, K. Kang, “Anti-site reordering in LiFePO_4 : Defect annihilation on charge carrier injection.” (Poster), MRS Spring Meeting, San Francisco, USA (2015).
 12. **J. Hong**, H. Kim, S.-K. Jung, G. Yoon, K.-Y. Park, K. Ku, H. Kim, K. Kang, “High capacity layered li-excess nickel manganese oxide cathodes with suppressed voltage drop” (Poster), 2015 IUPAC 48th General Assembly and 45th World Chemistry Congress (IUPAC-2015), Busan, Korea (2015).
 13. **J. Hong**[†], M. Lee[†], B. Lee, D.-H. Seo, K.-Y. Park, G. Yoon, C. B. Park, K. Kang, “Pteridine redox centers inspired by biological energy metabolism for sustainable rechargeable batteries.” (Poster, invited), XXIV International Materials Research Congress, Cancun, Mexico (2015).
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