

Curriculum Vitae

Personal information

Name **Soo Min Hwang (황수민)**

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Education

2009. 03 ~ 2013.02 **Ph. D. Degree** in Materials Engineering,
School of Advanced Materials Science and Engineering,
Sungkyunkwan University, Suwon 16419, Republic of Korea,
Advisor: Prof. Jinho Joo (jinho@skku.edu)

2007. 03 ~ 2009. 02 **Master Degree** in Materials Engineering,
School of Advanced Materials Science and Engineering,
Sungkyunkwan University, Suwon 16419, Republic of Korea,
Advisor: Prof. Jinho Joo (jinho@skku.edu)

2001. 05 ~ 2003. 11 **Military Service** in Republic of Korea Air Force (병장만기제대)

2000. 03 ~ 2007. 02 **Bachelor Degree**
in School of Advanced Materials Science and Engineering,
Sungkyunkwan University, Suwon 16419, Republic of Korea

Ph. D. & Master Thesis

1. **Ph.D. Thesis**, “*Sol-Gel Deposition and Characterization of Nanoscale ZrO₂ Films for Solution-Processed Electronics*,” School of Advanced Materials Science and Engineering, Sungkyunkwan University (Feb. 2013)
2. **Master’s Thesis**, “*Fabrication and Characterizations of 2-Layer FCCL by Electroless- and Electro-Cu Plating*,” School of Advanced Materials Science and Engineering, Sungkyunkwan University (Feb. 2009).

Professional Experiences

- 2021.12 ~ present Principal Engineer
ASB T/F, SDI R&D Center, Samsung SDI Co., LTD,
130 Samsung-ro, Yeongtong-gu, Suwon 16678, Republic of Korea
- 2018.09 ~ 2021.12 Research Professor
in SKKU Advanced Institute of Nanotechnology (SAINT),
Sungkyunkwan University,
2066 Seobu-ro, Jangan-gu, Suwon 16419, Republic of Korea
Supervisor: Prof. Young-Jun Kim (yjkim68@skku.edu)
- 2015.01 ~ 2018.08 Research Assistant Professor
in School of Energy and Chemical Engineering,
Ulsan National Institute of Science and Technology (UNIST),
UNIST-gil 50, Ulsan 689-798, Republic of Korea
Supervisor: Prof. Youngsik Kim (ykim@unist.ac.kr)
- 2013.08 ~ 2014.11 Associate Research Fellow
in Advanced Photovoltaic Materials Group,
Institute for Superconducting and Electronic Materials (ISEM),
Australian Institute for Innovative Materials (AIIM),
University of Wollongong,
Innovation campus, North Wollongong, NSW 2500, Australia
Supervisor: Prof. Jung Ho Kim (jhk@uow.edu.au)
- 2013.03 ~ 2013.06 Post-Doctoral Position
in Micro Electronic Packaging Laboratory,
School of Advanced Materials Science and Engineering,
Sungkyunkwan University,
Suwon, 440-746, Republic of Korea
Supervisor: Prof. Seung-Boo Jung (sbjung@skku.edu)

Journal Publications: 29 papers (for last 5 years)

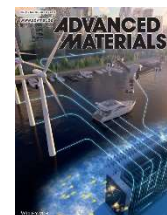
First-/Corresponding-authored papers #: 24

Google scholar *h*-index: 24

1. Jin Kyo Koo, Weerawat To A Ran, Younghoon Yun, Jae kwon Seo, Moonsoo Kim, Jaejin Lee, Seungtae Lee, Jongho Kim, **Soo Min Hwang***, and Young-Jun Kim*, “Probing capacity-fading and intraparticle heterogeneity in Ni-rich layered cathodes using scanning probe microscopy,” *J. Energy Storage* 51, 104395 (2022). – **Co-corresponding author**
2. Lanlee Lee, Weerawat To A Ran, Jung-Hun Lee, **Soo Min Hwang***, and Young-Jun Kim*, “Self-Adaptive Anode Design with Graphene-Coated SiO_x/Graphite for High-Energy Li-

- Ion Batteries,” *Chem. Eng. J.* 442, 136166 (2022). – **Co-corresponding author**
3. Jae Seok Nam, Weerawat To A Ran, Seok Hee Lee, Thuy Hoai Linh Vuong, Hannah Jo, Jung-Hun Lee, **Soo Min Hwang***, and Young-Jun Kim*, “Densification and Charge Transport Characterization of Composite Cathodes with Single-Crystalline $\text{LiNi}_{0.8}\text{Co}_{0.15}\text{Al}_{0.05}\text{O}_2$ for Solid-State Batteries,” *Energy Storage Mater.* 46, 155 (2022). – **Co-corresponding author**
 4. Pankaj Sharma[†], Jinhyup Han[†], Jaehyun Park[†], Dong Yeon Kim[†], Jinho Lee, Dongrak Oh, Namsu Kim, Dong-Hwa Seo*, Youngsik Kim*, Seok Ju Kang*, **Soo Min Hwang***, and Ji-Wook Jang*, “Alkali-metal-mediated reversible chemical hydrogen storage using seawater,” *JACS Au* 1, 2339 (2021). – **Co-corresponding author**
 5. Siying Li, Jung-Hun Lee, **Soo Min Hwang**, Ji-Beom Yoo, Hansu Kim, and Young-Jun Kim*, “Natural Activation of CuO to CuCl_2 as a Cathode Material for Dual-Ion Lithium Metal Batteries,” *Energy Storage Mater.* 41, 466 (2021).
 6. Jung-Hun Lee, Thuy Hoai Linh Vuong, **Soo Min Hwang**, Jae-Hun Kim, and Young-Jun Kim, “Controlling a lithium surface with an alkyl halide nucleophile exchange, *J. Energy Chem.* 62, 617 (2021).
 7. Chang Won Park, Jung-Hun Lee, Jae Kwon Seo, Weerawat To A Ran, Dongmok Whang, **Soo Min Hwang***, and Young-Jun Kim*, “Graphene/PVDF composites for Ni-rich oxide cathodes toward high-energy density Li-ion batteries,” *Materials* 14, 2271 (2021). – **Co-corresponding author**
 8. Chang Won Park[†], Jung-Hun Lee[†], Jae Kwon Seo, Won Young Jo, Dongmok Whang, **Soo Min Hwang***, and Young-Jun Kim*, “Graphene collage on Ni-rich layered oxide cathodes for advanced lithium-ion batteries,” *Nat. Commun.* 12, 2145 (2021). – **Co-corresponding author**
 9. Sang A Han[†], **Soo Min Hwang**[†], Wanchul Seung, Tae Yun Kim, Min-Sik Park, Ju-Hyuk Lee, Sang-Woo Kim, Jung Ho Kim, “n-ZnO/p-NiO Core/Shell-Structured Nanorods for Piezoelectric Nanogenerators,” *Energy Technol.* 8, 2000462 (2020). – **featured on the “Back Cover” with co-first author**
 10. Lanlee Lee, Younghoon Yun, Jongmin Yun, **Soo Min Hwang***, and Young-Jun Kim*, “Enhanced Cycle Performance of Ultrabatteries by a Surface-Treated-Coke Coating,” *J. Energy Storage*, 30, 101521 (2020). – **Co-corresponding author**
 11. Dong Won Kim, **Soo Min Hwang***, Ji Beom Yoo*, and Young-Jun Kim*, “Electrode engineering with CNTs to enhance the electrochemical performance of $\text{LiNi}_{0.6}\text{Co}_{0.2}\text{Mn}_{0.2}\text{O}_2$ cathodes with commercial level design parameters,” *ChemElectroChem*, 7, 2621 (2020). – **Co-corresponding author**
 12. Dong Won Kim, Won Young Jo, Chang Won Park, **Soo Min Hwang***, Ji Beom Yoo,* and Young-Jun Kim,* “Effect of electrode design parameters on the rate performance of $\text{LiNi}_{0.6}\text{Co}_{0.2}\text{Mn}_{0.2}\text{O}_2$ cathodes using pulse measurements,” *Electrochimica Acta* 341, 135936 (2020). – **Co-corresponding author**

13. Kihyun Son[†], **Soo Min Hwang**[†], Seok-Gyun Woo, Jin Kyo Koo, Meenseon Paik, Eui Hwan Song*, and Young-Jun Kim*, “Comparative study of thermal runaway and cell failure of lab-scale Li-ion batteries using accelerating rate calorimetry,” *J. Ind. Eng. Chem.* 83, 247 (2020). – **Co-first author**
14. Kihyun Son[†], **Soo Min Hwang**[†], Seok-Gyun Woo, Eui Hwan Song*, and Young-Jun Kim*, “Thermal and chemical characterization of the solid-electrolyte interphase in Li-ion batteries using a novel separator sampling method,” *J. Power Sources* 440, 227083 (2019). – **Co-first author**
15. Jin Hyun Kim^{†,*}, **Soo Min Hwang**[†], Inchan Hwang, Jinhyup Han, Jeong Hun Kim, Yim Hyun Jo, Kwanyong Seo, Youngsik Kim*, and Jae Sung Lee*, “Seawater-Mediated Solar-to-Sodium Conversion by Bismuth Vanadate Photoanode-Photovoltaic Tandem Cell: Solar Rechargeable Seawater Battery,” *iScience* 19, 232 (2019). – **Co-first author**
16. Jae Seok Nam, Jung-Hun Lee, **Soo Min Hwang***, and Young-Jun Kim*, “New Insights into the Phase Evolution in CuS during Lithiation and Delithiation Processes,” *J. Mater. Chem. A* 7, 11699 (2019). – **Co-corresponding author** (*featured in 2019 J. Mater. Chem. A Hot papers*)
17. Chang Min Lee, Chan Ho Jin, Cheol Hyoun Ahn, Hyung Koun Cho, Jun Hyung Lim, **Soo Min Hwang***, and Jinho Joo*, “Enhanced Gas Sensing Performance of Surface-Activated MoS₂ Nanosheets Made by Hydrothermal Method with Excess Sulfur Precursor,” *Phys. Status Solidi A*, 216, 1800999 (2019). – **Co-corresponding author**
18. Chang Min Lee, Chan Ho Jin, Cheol Hyoun Ahn, Hyung Koun Cho, Jun Hyung Lim, **Soo Min Hwang***, and Jinho Joo*, “Enhanced Gas Sensing Performance of Hydrothermal MoS₂ Nanosheets by Post-Annealing in Hydrogen Ambient,” *Bull. Chem. Soc. Jpn.* 92, 1094 (2019). – **Co-corresponding author**
19. Kang Ho Shin[†], Jehee Park[†], Sul Ki Park[†], Puritut Nakhnivej, **Soo Min Hwang***, Youngsik Kim, Ho Seok Park*, “Cobalt Vanadate Nanoparticles as Bifunctional Oxygen Electrocatalysts for Rechargeable Seawater Batteries,” *J. Ind. Eng. Chem.* 72, 250 (2019). – **Co-corresponding author**
20. **Soo Min Hwang**, Jeong-Sun Park, Yongil Kim, Wooseok Go, Jinhyup Han, Youngjin Kim, and Youngsik Kim*, “Rechargeable Seawater Batteries – from the Concept to Applications,” *Adv. Mater.* 31, 1804936 (2019). (*featured on the ‘Inside Front Cover’*)
21. Hyuntae Bae[†], Jeong-Sun Park[†], S. T. Senthilkumar, **Soo Min Hwang***, and Youngsik Kim*, “Hybrid Seawater Desalination-Carbon Capture Using Modified Seawater Battery System,” *J. Power Sources* 410-411, 99 (2019). – **Co-corresponding author**
22. Yongil Kim, **Soo Min Hwang***, Hyein Yu, and Youngsik Kim*, “Rechargeable Metal-Free Seawater Batteries: Phosphorus/Carbon Composite as a Promising Anode Material,” *J. Mater. Chem. A* 6, 3046 (2018). – **Co-corresponding author**
23. Junsoo Kim[†], Donghyeok Shin[†], Youngjae Jung, **Soo Min Hwang**, Taeseup Song*, Youngsik Kim*, and Ungyu Paik*, “LiCl-LiI molten salt electrolyte with bismuth-lead



- positive electrode for liquid metal battery,” *J. Power Sources*, 377, 87 (2018).
24. S. T. Senthilkumar, Jinhyup Han, Jeongsun Park, **Soo Min Hwang**, Donghoon Jeon, and Youngsik Kim*, “Energy Efficient Na-Aqueous-Catholyte Redox Flow Battery,” *Energy Storage Materials*, 12, 324 (2018).
 25. Jinhyup Han, **Soo Min Hwang***, Wooseok Go, S.T. Senthilkumar, Donghoon Jeon, and Youngsik Kim*, “Development of Coin-Type Cell and Engineering of its Compartments for Rechargeable Seawater Batteries,” *J. Power Sources* 374, 24 (2018). – **Co-corresponding author**
 26. Dong Hoon Suh[†], Sul Ki Park[†], Puritut Nakhanivej, Youngsik Kim, **Soo Min Hwang***, and Ho Seok Park*, “Hierarchically Structured Graphene-Carbon Nanotube-Cobalt Hybrid Electrocatalyst for Seawater Battery,” *J. Power Sources* 372, 31 (2017). – **Co-corresponding author**
 27. S. T. Senthilkumar, Sung O. Park, Junsoo Kim, **Soo Min Hwang**, Sang Kyu Kwak*, and Youngsik Kim*, “Seawater Battery Performance Enhancement Enabled by Defect/Edge-rich, Oxygen Self-Doped Porous Carbon Electrocatalyst,” *J. Mater. Chem. A* 5, 14174 (2017).
 28. **Soo Min Hwang***, Wooseok Go, Hyein Yu, and Youngsik Kim*, “Hybrid Na-Air Flow Batteries using an Acidic Catholyte: pH Effect of the Catholyte on the Cell Performance,” *J. Mater. Chem. A* 5, 11592 (2017). (*featured on the Front Cover of ‘J. Mater. Chem. A Emerging Investigators 2017’ Themed Issue*) – **First & Co-corresponding author**
 29. S.T. Senthilkumar, Mari Abirami, Junsoo Kim, **Soo Min Hwang***, and Youngsik Kim*, “Sodium-Ion Hybrid Electrolyte Battery for Sustainable Energy Storage Applications,” *J. Power Sources* 341, 404 (2017). – **Co-corresponding author**

