

Jeemin Hwang

Integrated M.S. & Ph.D

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POSITIONS

<i>Sep. 2015 ~</i>	Yonsei University	Seoul, Korea
<i>Present</i>	Department of Chemical and Biomolecular Engineering Ph. D. Student <i>Advisor: Byungchan Han</i>	
<i>Mar. 2015 ~</i>	Yonsei University	Seoul, Korea
<i>Aug. 2015</i>	Department of Chemical and Biomolecular Engineering Research Internship, HANS Lab	

EDUCATION

<i>Sept. 2008 ~</i>	University of Minnesota-Twin Cities	Twin cities, USA
<i>May. 2014</i>	Department of Chemistry B.S. in Chemistry	

RESEARCH INTERESTS

Nano-science using first principles calculations.

Active and durable hydrogen evolution reaction, oxygen reduction reaction and oxygen evolution reaction catalysts in both acid and alkaline media for fuel cell and metal-air battery.

Electrochemical study on the activity and durability of materials via theoretical prediction.

PUBLICATIONS

(+ = Co-first Author, * = Corresponding Author, Total Publications = 14, Publications as a First Author = 4)

1. Kyungju Nam, Hoje Chun, Jeemin Hwang, Kyung-Ah Min and Byungchan Han*, "Pairing of Transition Metal Dichalcogenide and Doped Graphene for Catalytically Dual Active Interfaces for Hydrogen Evolution Reaction", ACS Sustainable Chemistry & Engineering, 10852-10858 (2020)
2. Xiandi Zhang+, Kyung-Ah Min+, Weiran Zheng, Jeemin Hwang, Byungchan Han* and Lawrence Yoon Suk Lee*, "Copper phosphosulfides as a highly active and stable photocatalyst for hydrogen evolution reaction", Applied Catalysis B: Environmental, 273, 118927 (2020)
3. Yunxing Zhao+, Jeemin Hwang+, Michael T. Tang, Hoje Chun, Xingli Wang, Hu Zhao, Karen Chan, Byungchan Han*, Pingqi Gao* and Hong Li*, "Ultrastable molybdenum disulfide-based electrocatalyst for hydrogen evolution in acidic media", Journal of Power Sources, 456, 227998 (2020)
4. Kyungju Nam+, Hoje Chun+, Jeemin Hwang and Byungchan Han*, "First-Principles Design of Highly

- Functional Sulfide Electrolyte $\text{Li}_{10-x}\text{SnP}_2\text{S}_{12-x}\text{Cl}_x$ for All Solid-State Li-ion Battery Applications”, *ACS Sustainable Chemistry & Engineering*, 8, 3321-3327 (2020)
5. Jeemin Hwang, Seung Hyo Noh and Byungchan Han*, "Design of active bifunctional electrocatalysts using single atom doped transition metal dichalcogenides", *Applied Surface Science*, 471, 545-551 (2019)
 6. Seunghyo Noh, Jeemin Hwang, Joonhee Kang and Byungchan Han*, "First-principles computational approach for innovative design of highly functional electrocatalysts in fuel cells", *Current Opinion in Electrochemistry*, 12, 225-232 (2018)
 7. Hyunwook Jung, Jeemin Hwang, Hoje Chun and Byungchan Han*, "Elucidation of hydrolysis reaction mechanism of tungsten hexafluoride (WF₆) using first-principles calculations", *Journal of Industrial and Engineering Chemistry*, 70, 99-102 (2019)
 8. Seung Hyo Noh, Jeemin Hwang, Joonhee Kang, Min Ho Seo, Daehyeon Choi and Byungchan Han*, "Tuning the catalytic activity of Heterogeneous two-dimensional transition metal dichalcogenide for hydrogen evolution", *Journal of Materials Chemistry A*, 6, 20005 (2018)
 9. Seung Hyo Noh, Jeemin Hwang, Byungchan Han* and Takeo Ohsaka*, "Understanding of metals encapsulated in carbon layers and their electrocatalytic applications", *Accounts of Materials & Surface Research*, 3(3), 145-157 (2018)
 10. Joonhee Kang, Seung Hyo Noh, Jeemin Hwang, Hoje Chun, Hansung Kim and Byungchan Han*, "First-principles Database driven computational neural network approach to the discovery of active ternary nanocatalysts for oxygen reduction reaction", *Physical Chemistry Chemical Physics*, 20, 24539-24544 (2018)
 11. Joonhee Kang, Jeemin Hwang and Byungchan Han*, "First Principles Computational Screening of Highly Active Pyrites Catalysts for Hydrogen Evolution Reaction Through a Universal Relation with a Thermodynamic Variable", *Journal of Physical Chemistry C*, 122(4), 2107-2112 (2018)
 12. Seung Hyo Noh, Jeemin Hwang, Choah Kwon and Byungchan Han*, "Self-assembled nitrogen doped fullerenes and their catalysis for fuel cell and rechargeable metal-air battery applications", *Nanoscale*, 9, 7373-7379 (2017)
 13. Altansukh Dorjgotov+, Yukwon Jeon+, Jeemin Hwang+, Byambasuren Ulziidelger, Hyeong Su Kim, Byungchan Han* and Yong-Gun Shul*, "Synthesis of Durable Small-sized Bilayer Au@Pt Nanoparticles for High Performance PEMFC Catalysts", *Electrochimica Acta*, 228, 389-397 (2017)
 14. Jin Goo Lee+, Jeemin Hwang+, Ho Jung Hwang, Ok Sung Jeon, Jeongseok Jang, Ohchan Kwon, Yeayeon Lee, Byungchan Han* and Yong-Gun Shul*, "A new family of perovskite catalysts for oxygen-evolution reaction in alkaline media: BaNiO₃ and BaNi_{0.83}O_{2.5}", *Journal of the American Chemical Society*, 138, 3541-3547 (2016)

PATENTS

1. 한병찬, 황지민, 강준희, 수소 발생 촉매 구조체 및 그 설계방법, 10-2019-0125329, 국내 특허 출원, 2019.10.10.
2. 한병찬, 황지민, 강준희, 촉매 구조체 및 그 설계방법, 10-2019-0125328, 국내 특허 출원, 2019.10.10.

PRESENTATIONS

1. J. Hwang, S. Noh and B. Han*, Single atom supported on transition metal dichalcogenides as a bifunctional catalyst, Nano Korea, Kintex, Korea, July 2019.
2. J. Hwang, J. Kang, S. Noh and B. Han*, Tuning and design of active bifunctional electrocatalysts with transition metal dichalcogenides using single atom doping and two-dimensional heterogeneous interfaces, 25th Topical Meeting of the International Society of Electrochemistry, Toledo, Spain, May 2019.
3. J. Kang, J. Hwang and B. Han, Highly Active Pyrites Catalysts for Hydrogen Evolution Reaction through a Universal Relation with a Thermodynamic Variable by First Principles Computational Screening, 한국전기화학학회, 창원, Korea, April, 2018.
4. S. H. Noh, J. Hwang, and B. Han, Self-assembled Nitrogen-doped Fullerenes and Their Catalysis for Fuel Cell Applications, HyMap, Busan, Korea, Nov., 2017.