JIWOONG BAE

Assistant Professor, School of Mechanical Engineering,
Hanyang University, Seoul, South Korea
Email: jwbae@hanyang.ac.kr

PROFESSIONAL EXPERIENCES

Sep.2022 – Present	**Assistant Professor** School of Mechanical Engineering Department of Energy Engineering (Joint Appointment) Clean Energy Solution Lab (CLES)	Hanyang University, South Korea
Feb.2021 – Aug.2022	**Postdoctoral Associate** Molecular Foundry (Dr. Brett A. Helms group)	Lawrence Berkeley National Lab., USA
Jan.2017 – Feb.2021	**Research Assistant** Energy Nanomaterials Lab (Prof. Guihua Yu group)	The University of Texas at Austin, USA
Mar.2014 – Feb.2016	**Research Assistant** RECSS Lab (Prof. Young-Beom Kim group)	Hanyang University, South Korea

EDUCATION

Aug.2016 – Dec.2020	**The University of Texas at Austin** Ph.D. in Mechanical Engineering (GPA 4.0/4.0)	TX, USA
Mar.2014 – Feb.2016	**Hanyang University** M.S. in Mechanical Engineering (GPA 4.0/4.0)	Seoul, South Korea
Mar.2006 – Feb.2014	**Hanyang University** B.S. in Mechanical Engineering (GPA 3.7/4.0) *Summa Cum Laude*	Seoul, South Korea

RESEARCH SPECIALTY

Electrolyte & Interface: Electrolyte for next-generation batteries including solid electrolytes (oxide conductors; LLTO/LLZO and polymers; PEO/PVDF/ORION), composite polymer electrolytes (LLTO/LLZO 3D fillers with polymer matrix), liquid electrolytes (molecular interactions & additive manufacturing), interfacial engineering & chemistry (artificial SEI layer, controlling interphase)

Next-Generation Batteries: All-solid-state batteries, semi-solid-state batteries, Si-anode batteries, and Li-metal batteries, Alkali-/Alkaline-earth-metals anode (Li, Na, K and Mg) batteries

Sustainable Manufacturing: Cost-effective and environmental-friendly manufacturing processes including dry-electrode-coating, solid electrolyte film, and solvent-free electrode coating.

SELECTED PUBLICATIONS (15 lead-author / 29 papers, Total Citation: 2264, H-index: 19)

1. ***Energy Environ. Sci.*** **14** (2021) 4391-4399 (IF 39.714)

   Jiwoong Bae*, H. Park*, X. Guo, X. Zhang, J. H. Warner and G. Yu, (*equally contributed) "High-Performance Magnesium Metal Battery via Switching Passivation Film into Solid Electrolyte Interphase"

2. ***Nano Lett.*** **21** (2021) 1184-1191 (IF 12.262)

   Jiwoong Bae, X. Zhang, X. Guo and G. Yu, "A General Strategy of Anion-Rich High-Concentration Polymeric Interlayer for High-Voltage, All-Solid-State Batteries"

3. ***Adv. Funct. Mater.*** **31** (2021) 2010863 (IF 19.924)

   Jiwoong Bae*, X. Guo*, Y. Ding, X. Zhang and G. Yu, (*equally contributed) "Liquid Alloy Enabled Solid-State Batteries for Conformal Electrode-Electrolyte Interfaces"

4. ***Chem. Rev.*** **120** (2020) 7642 (IF 72.087)

   Jiwoong Bae*, Y. Guo*, Z. Fang*, P. Li*, F. Zhao and G. Yu, (*equally contributed) "Hydrogels and Hydrogel-Derived Materials for Energy and Water Sustainability"

5. ***Energy Environ. Sci.*** **12** (2019) 3319-3327 (IF 39.714)

   Jiwoong Bae, Y. Qian, Y. Li, X. Zhou, J. B. Goodenough and G. Yu, "Polar Polymer-Solvent Interaction Derived Favorable Interphase for Stable Lithium Metal Batteries"

6. ***Trends. Chem.*** **1** (2019) 335-348 (IF 22.448)

   Jiwoong Bae*, Y. Guo*, F. Zhao and G. Yu, (*equally contributed) "Functional Hydrogels for Next-Generation Batteries and Supercapacitors"

7. ***Angew. Chem. Int. Ed.*** **57** (2018) 2096-2100 (IF 16.823)

   Jiwoong Bae, Y. Li, J. Zhang, X. Zhou, F. Zhao, Y. Shi, J. B. Goodenough and G. Yu, "A 3D Nanostructured Hydrogel-Framework-Derived High-Performance Composite Polymer Lithium-Ion Electrolyte"

8. ***Energy Storage Mater.*** **15** (2018) 46-52 (IF 20.831)

   Jiwoong Bae, Y. Li, F. Zhao, X. Zhou, Y. Ding and G. Yu, "Designing 3D Nanostructured Garnet Frameworks for Enhancing Ionic Conductivity and Flexibility in Composite Polymer Electrolytes for Lithium Batteries"

9. ***Adv. Mater.*** **30** (2018) 1801796 (IF 32.086)

   Jiwoong Bae*, F. Zhao*, X. Zhou*, Y. Guo and G. Yu, (*equally contributed) "Nanostructured Functional Hydrogels as an Emerging Platform for Advanced Energy Technologies"

10. ***J. Electrochem. Soc.*** **163** (2016) F919-F926 (IF 4.371)

    Jiwoong Bae, Y. Lim, J. Park, D. Lee, S. Hong, J. An and Y. B. Kim, "Thermally-Induced Dopant Segregation Effects on Space Charge Layer and Ionic Conductivity of Nanocrystalline Gadolinium-Doped Ceria"

11. ***Scr. Mater.*** **104** (2015) 45-48 (IF 6.302)

    Jiwoong Bae*, J. An*, S. Hong, B. Koo, Y. B. Kim, T. M. Gür and F. B. Prinz, (*equally contributed) "Grain Boundary Blocking of Ionic Conductivity in Nanocrystalline Yttria-Doped Ceria Thin Films"

Google Scholar: http://scholar.google.co.kr/citations?user=VLwAq5AAAAAJ&hl=en

Personal homepage: http://www.jiwoongbae.com