

# Yang-Kook Sun

2019 [연구우수교수](#)이다.

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## Profile

- 2019 Class of Fellows, The Electrochemical Society (U.S.A)
- 2019 ~ present ECS Fellow, Electrochemical Society
- 2017 The Battery Division Technology Award, The Electrochemical Society (U.S.A.)
- 2016 ~ present Member, The National Academy of Engineering of Korea
- 2016 ~ present Senior Editor of ACS Energy Letters
- 2016~2019 Highly Cited Researcher(Material Science), Clarivate Analytics
- 2012 ~ 2016 Editor of Journal of Power Sources
- 2012 R&D 100 Award, R&D Magazine (U.S.A.)
- 2011 The Battery Division Research Award, The Electrochemical Society (U.S.A.)
- 2009 ~ present Distinguished Professor, Department of Energy Engineering, Hanyang University
- 2008 ~ 2013 Senior Visiting Scientist, Argonne National Lab. (U.S.A.)
- 2000 ~ 2009 Professor, Department of Chemical Engineering, Hanyang University
- 1996 ~ 2000 Principle Research Engineer (Team Leader of Lithium Polymer Battery), Samsung Advanced Institute of Technology
- 1992 Ph.D. in Chemical Engineering, Seoul National University

## Research Topic

- Cathode Materials for Lithium-ion Batteries
  - Advanced Cathode / Core-Shell & Concentration Gradient Material
  - Olivine Phosphate
  - Surface Modification
- Lithium Air Batteries
  - Porous cathode for high efficiency and cyclability with ORR & OER catalytic effect
  - Suitable electrolyte for stable and effective Li-O<sub>2</sub> battery system
  - Suggestion of new mechanism in Li-O<sub>2</sub> battery system

- Lithium Sulfur Batteries
  - High performance Li-S Battery Cathode
  - Li-S Battery Electrolyte Application
  - $\text{Li}_x\text{Si-S}$  Battery system : Full cell
- Sodium-ion Batteries
  - Novel concept transition metal oxide cathode materials
  - Advanced anode materials
  - Optimization of full cells fabrication for practical approaches

## Papers

- “Sodium-ion batteries: present and future”, CHEMICAL SOCIETY REVIEWS, 2017  
<https://pubs.rsc.org/en/content/articlehtml/2017/cs/c6cs00776g>
- “Aprotic and Aqueous Li-O<sub>2</sub> Batteries”, CHEMICAL REVIEWS, 2014  
<https://pubs.acs.org/doi/abs/10.1021/cr400573b>
- “A nanostructured cathode architecture for low charge overpotential in lithium-oxygen batteries”, NATURE COMMUNICATIONS, 2013 <https://www.nature.com/articles/ncomms3383>
- “Anatase Titania Nanorods as an Intercalation Anode Material for Rechargeable Sodium Batteries”, NANO LETTERS, 2014 <https://pubs.acs.org/doi/abs/10.1021/nl402747x>
- “Ruthenium-Based Electrocatalysts Supported on Reduced Graphene Oxide for Lithium-Air Batteries”, ACS NANO, 2013 <https://pubs.acs.org/doi/abs/10.1021/nn400477d>
- “Nickel-Rich Layered Cathode Materials for Automotive Lithium-Ion Batteries: Achievements and Perspectives”, ACS ENERGY LETTERS, 2017  
<https://pubs.acs.org/doi/abs/10.1021/acsenergylett.6b00594>
- “The Application of Metal Sulfides in Sodium Ion Batteries”, ADVANCED ENERGY MATERIALS, 2017 <https://onlinelibrary.wiley.com/doi/full/10.1002/aenm.201601329>
- “High Electrochemical Performances of Microsphere C-TiO<sub>2</sub> Anode for Sodium-Ion Battery”, ACS APPLIED MATERIALS & INTERFACES, 2014  
<https://pubs.acs.org/doi/abs/10.1021/am501772a>
- “High-energy-density lithium-ion battery using a carbon-nanotube-Si composite anode and a compositionally graded  $\text{Li}[\text{Ni}_{0.85}\text{Co}_{0.05}\text{Mn}_{0.10}]\text{O}_2$  cathode”, ENERGY & ENVIRONMENTAL SCIENCE, 2016 <https://pubs.rsc.org/no/content/articlehtml/2016/ee/c6ee01134a>
- “Nanostructured metal phosphide-based materials for electrochemical energy storage”, JOURNAL OF MATERIALS CHEMISTRY A, 2016  
<https://pubs.rsc.org/en/content/articlehtml/2016/ta/c6ta06705k>
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