**Kwangyeol Lee**

Professor

Department of Chemistry

Korea University

Rm 304, Asan Science Building, Seoul, Korea,

Phone: +82-2-3290-3139

e-mail: kylee1@korea.ac.kr

URL: http://nanolab.korea.ac.kr

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| **Academic Records** | 1992; KAIST (B.S.)  1997; University of Illinois at Urbana-Champaign (Ph.D) |
| **Professional Career** | 1998.1-2003.8 Postdoctoral Research Associate at KAIST  2003.9-present Professor at Korea University |
| **Selected**  **Publications** | 1. “Janus to core-shell to Janus: Facile cation movement in Cu2-xS/Ag2S hexagonal nanoplates induced by surface strain control” ***ACS Nano***, **2019**, *Online Published*  2. “Topotactic Transformations in an Icosahedral Nanocrystal to Form Efficient Water-Splitting Catalysts” ***Adv. Mater***. **2019**, *31*, 1805546  3. “Morphology-controlled metal sulfides and phosphides for electrochemical water splitting” ***Adv. Mater***. **2019**, *31*, 1806682  4. “Hollow nanoparticles as emerging electrocatalysts for renewable energy conversion reactions” ***Chem. Soc. Rev***. **2018**, *47*, 8173  5. “Janus nanoparticle structural motif control via asymmetric cation exchange in edge-protected Cu1.81S@IrxSy hexagonal nanoplates” ***ACS Nano***, **2018**, *12*,7996  6. “Dendrite-embedded Pt-Ni Multiframes as Highly Active and Durable Electrocatalyst towards the Oxygen Reduction Reaction” ***Nano Lett.* 2018**, *18*, 2930  7. “Vertex-reinforced PtCuCo ternary nanoframes as efficient and stable electrocatalysts for the oxygen reduction reaction and the methanol oxidation reaction” ***Adv. Funct. Mater***. **2018**, *28*, 1706440  8. “Radially phase segregated PtCu@PtCuNi dendrite@frame nanocatalyst for the oxygen reduction reaction” ***ACS Nano***, **2017**, 11, 10844  9. “Iridium-based multimetallic nanoframe@nanoframe structure: An efficient and robust electrocatalyst toward oxygen evolution reaction” ***ACS Nano***, **2017**, *11*, 5500  10. “Cobalt assisted synthesis of IrCu hollow octahedral nanocages as highly active electrocatalysts toward oxygen evolution reaction” ***Adv. Funct. Mater***. **2017**, *27*, 1604688  11. “Facet-controlled hollow Rh2S3 hexagonal nanoprisms as highly active and structurally robust catalysts toward hydrogen evolution reaction” ***Energy Environ. Sci*. 2016,** *9*, 850 |