



Soon Hyung Kang

Professor

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Education:

Ph.D. (2004/9~2008/8) Interdisciplinary Program in Nano Science and Technology, Seoul National University, S. Korea

M.S. (2002/9~2004/8) Department of Materials Science and Engineering, Gwangju Institute of Science and Technology, S. Korea

B.S. (1998/3~2002/8) Department of Chemistry Education, Chonnam National University (CNU), S. Korea

Experience:

Visiting Scholar, California Institute of Technology (Caltech), USA (Jan./2026 – Feb./2026)

Visiting Scholar, National Renewable Energy Laboratory in USA (Jan./2022-Feb./2023)

Full professor, Department of Chemistry Education, CNU in Korea (Oct./2018-present)

Associate professor, Department of Chemistry Education, CNU in Korea (Mar./2015-Oct./2018)

Assistant professor, Department of Chemistry Education, CNU in Korea (Mar./2011-Feb./2015)

Postdoctoral researcher, Department of Chemistry, University of Texas at Austin in USA (Oct./2010-Feb./2011)

Postdoctoral researcher, National Renewable Energy Laboratory in USA (Nov./2008-Oct./2010)

Postdoctoral researcher, Research Center for Energy Conversion and Storage in Seoul National University (Sept./2008-Oct./2008)

Visiting Scholar, University of Minnesota in USA (Nov./2007-Mar./2008)

Selective Honors & Awards:

1. Research Achievement Award, CNU (2016)

Research Areas:

- Photoelectrochemical (PEC) electrode development for solar-driven water splitting
- Solar and non-solar **CO₂ reduction**, **glycerol oxidation (GOR)**, and **alcohol oxidation reactions (AOR)**
- Design and optimization of **integrated PEC systems** for enhanced conversion efficiency
- **Tandem PEC configurations** for improved solar energy utilization
- **Interfacial analysis** and **charge carrier dynamics** in photoelectrochemical systems

Selective Publications:

1. Maheswari Arunachalam, Jyoti Ganapati Badiger, Suzan Abdelfattah Sayed, Soon Hyung Kang^{*}, “Photoelectrochemical Coupling of Waste-Nitrogen Oxidation Reactions with Hydrogen Evolution for Sustainable Energy Conversion” (Review Article), **ChemSusChem**, 2026, 19, e202501772.
2. Maheswari Arunachalam, Kwangsoo Kim, Kug-Seung Lee, Byung-Hyun Kim^{*}, Soon Hyung Kang^{*}, “Durable and Efficient Solar CO₂-to-CO Conversion Enabled by Single-Atom Ag on Zn₃(PO₄)₂ Cathode Coupled With a GaAs/Pt_{SA}@NiOOH Photoanode”, **Adv. Energy Mater.** 2025, 15, e02953.
3. Maheswari Arunachalam, Kug-Seung Lee^{*}, Kai Zhu^{*}, Soon Hyung Kang^{*}, “Effective Corrosion-Resistant Single-Atom Alloy Catalyst on HfO₂-Passivated BiVO₄ Photoanode for Durable (≈800 h) Solar Water Oxidation”, **Adv. Energy Mater.** 2024, 14, 2402607 (Selected as Front Cover image)
4. Maheswari Arunachalam, Rohini Subhash Kanase, Kai Zhu^{*} & Soon Hyung Kang^{*}, “Reliable bi-functional nickel-phosphate /TiO₂ integration enables stable n-GaAs photoanode for water oxidation under alkaline condition”, **Nature Commun.** 2023, 14, 5429.
5. Maheswari Arunachalam, Rohini Subhash Kanase, Jyoti Ganapati Badiger, Suzan Abdelfattah Sayed, , Kwang-Soon Ahn, Jun-Seok Ha, Sang-Wan Ryu, Soon Hyung Kang^{*}, “Durable bias-free solar Water-Splitting cell composed of n+p- Si/Nb₂O₅/NiPt photocathode and W:BiVO₄/NiCo(O-OH)₂ photoanode”, **Chem, Eng. J.** 2023, 474, 145262.