



Dohyung Kim

Postdoctoral Scholar, Chemical Engineering

Bio

HONORS AND AWARDS

- Kavli Energy NanoScience Institute Best Thesis Prize, Kavli Energy NanoScience Institute (2018)
- MRS Graduate Student Award Silver, MRS (2018)
- Schmidt Science Fellow Finalist (Inaugural cohort), Schmidt Science Fellows (2018)
- Gareth Thomas Materials Excellence Award, UC Berkeley (2017)
- Samsung Scholar, Samsung Scholarship (2012 - 2017)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, University of California Berkeley (2018)
- Master of Science, University of California Berkeley (2014)

PATENTS

- Peidong Yang, Qiao Kong, Dohyung Kim, Chong Liu. "United States Patent 11047055 Method of depositing nanoparticles on an array of nanowires", Jun 29, 2021
- Peidong Yang, Dohyung Kim. "United States Patent 10704153 Copper nanoparticle structures for reduction of carbon dioxide to multicarbon products", Jul 7, 2020

Publications

PUBLICATIONS

- **Nanoparticle Assembly Induced Ligand Interactions for Enhanced Electrocatalytic CO₂ Conversion.** *Journal of the American Chemical Society*
Yu, S., Kim, D., Qi, Z., Louisia, S., Li, Y., Somorjai, G. A., Yang, P.
2021
- **Voltage cycling process for the electroconversion of biomass-derived polyols.** *Proceedings of the National Academy of Sciences of the United States of America*
Kim, D., Zhou, C., Zhang, M., Cargnello, M.
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- **Selective CO₂ electrocatalysis at the pseudocapacitive nanoparticle/ordered-ligand interlayer** *NATURE ENERGY*
Kim, D., Yu, S., Zheng, F., Roh, I., Li, Y., Louisia, S., Qi, Z., Somorjai, G. A., Frei, H., Wang, L., Yang, P.
2020; 5 (12): 1032-1042
- **Electrochemically scrambled nanocrystals are catalytically active for CO₂-to-multicarbon** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Li, Y., Kim, D., Louisia, S., Xie, C., Kong, Q., Yu, S., Lin, T., Aloni, S., Fakra, S. C., Yang, P.
2020; 117 (17): 9194-9201
- **Formic acid oxidation boosted by Rh single atoms.** *Nature nanotechnology*
Kim, D., Cargnello, M.

2020

- **Surface and Interface Control in Nanoparticle Catalysis** *CHEMICAL REVIEWS*
Xie, C., Niu, Z., Kim, D., Li, M., Yang, P.
2020; 120 (2): 1184-1249
- **Designing materials for electrochemical carbon dioxide recycling** *NATURE CATALYSIS*
Ross, M. B., De Luna, P., Li, Y., Dinh, C., Kim, D., Yang, P., Sargent, E. H.
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- **Electrocatalytic Rate Alignment Enhances Syngas Generation** *JOULE*
Ross, M. B., Li, Y., De Luna, P., Kim, D., Sargent, E. H., Yang, P.
2019; 3 (1): 257-264
- **Strongly Quantum Confined Colloidal Cesium Tin Iodide Perovskite Nanoplates: Lessons for Reducing Defect Density and Improving Stability** *NANO LETTERS*
Wong, A., Bekenstein, Y., Kang, J., Kley, C. S., Kim, D., Gibson, N. A., Zhang, D., Yu, Y., Leone, S. R., Wang, L., Alivisatos, A., Yang, P.
2018; 18 (3): 2060-2066
- **Copper nanoparticle ensembles for selective electroreduction of CO₂ to C-2-C-3 products** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Kim, D., Kley, C. S., Li, Y., Yang, P.
2017; 114 (40): 10560-10565
- **Control of Architecture in Rhombic Dodecahedral Pt-Ni Nanoframe Electrocatalysts** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Becknell, N., Son, Y., Kim, D., Li, D., Yu, Y., Niu, Z., Lei, T., Sneed, B. T., More, K. L., Markovic, N. M., Stamenkovic, V. R., Yang, P.
2017; 139 (34): 11678-11681
- **Tunable Cu Enrichment Enables Designer Syngas Electrosynthesis from CO₂** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Ross, M. B., Cao Thang Dinh, Li, Y., Kim, D., De Luna, P., Sargent, E. H., Yang, P.
2017; 139 (27): 9359-9363
- **through Atomic Ordering Transformations of AuCu Nanoparticles.** *Journal of the American Chemical Society*
Kim, D., Xie, C., Becknell, N., Yu, Y., Karamad, M., Chan, K., Crumlin, E. J., Nørskov, J. K., Yang, P.
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- **Ultrathin Epitaxial Cu@Au Core-Shell Nanowires for Stable Transparent Conductors** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Niu, Z., Cui, F., Yu, Y., Becknell, N., Sun, Y., Khanarian, G., Kim, D., Dou, L., Dehestani, A., Schierle-Arndt, K., Yang, P.
2017; 139 (21): 7348-7354
- **Room-Temperature Dynamics of Vanishing Copper Nanoparticles Supported on Silica** *NANO LETTERS*
Kim, D., Becknell, N., Yu, Y., Yang, P.
2017; 17 (4): 2732-2737
- **Structure-Sensitive CO₂ Electroreduction to Hydrocarbons on Ultrathin 5-fold Twinned Copper Nanowires** *NANO LETTERS*
Li, Y., Cui, F., Ross, M. B., Kim, D., Sun, Y., Yang, P.
2017; 17 (2): 1312-1317
- **Plasmon-Enhanced Photocatalytic CO₂ Conversion within Metal Organic Frameworks under Visible Light** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
Choi, K., Kim, D., Rungtaweeworant, B., Trickett, C. A., Barmanbek, J., Alshammari, A. S., Yang, P., Yaghi, O. M.
2017; 139 (1): 356-362
- **Anisotropic phase segregation and migration of Pt in nanocrystals en route to nanoframe catalysts** *NATURE MATERIALS*
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- **Directed Assembly of Nanoparticle Catalysts on Nanowire Photoelectrodes for Photoelectrochemical CO₂ Reduction** *NANO LETTERS*
Kong, Q., Kim, D., Liu, C., Yu, Y., Su, Y., Li, Y., Yang, P.
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- **A Molecular Surface Functionalization Approach to Tuning Nanoparticle Electrocatalysts for Carbon Dioxide Reduction** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
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- **Metal-Organic Frameworks for Electrocatalytic Reduction of Carbon Dioxide** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*
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- **Covalent organic frameworks comprising cobalt porphyrins for catalytic CO₂ reduction in water** *SCIENCE*
Lin, S., Diercks, C. S., Zhang, Y., Kornienko, N., Nichols, E. M., Zhao, Y., Paris, A. R., Kim, D., Yang, P., Yaghi, O. M., Chang, C. J.
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- **Artificial Photosynthesis for Sustainable Fuel and Chemical Production** *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*
Kim, D., Sakimoto, K. K., Hong, D., Yang, P.
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- **Synergistic geometric and electronic effects for electrochemical reduction of carbon dioxide using gold-copper bimetallic nanoparticles** *NATURE COMMUNICATIONS*
Kim, D., Resasco, J., Yu, Y., Asiri, A., Yang, P.
2014; 5: 4948
- **Simple and cost-effective reduction of graphite oxide by sulfuric acid** *CARBON*
Kim, D., Yang, S., Kim, Y., Jung, H., Park, C.
2012; 50 (9): 3229-3232