

Selected Publications (2017-2024)

X. Han, T. Mou, A. Islam, S. Kang, Q. Chang, Z. Xie, X. Zhao, K. Sasaki, J.A. Rodriguez, P. Liu*, and J.G. Chen*, “Theoretical Prediction and Experimental Verification of IrOx Supported on Titanium Nitride for Acidic Oxygen Evolution Reaction”, *Journal of the American Chemical Society*, (2024) accepted.

Y. Yuan, E. Huang, S. Hwang, P. Liu and J.G. Chen*, “Converting Carbon Dioxide into Carbon Nanotubes by Reacting with Ethane”, *Angewandte Chemie International Edition*, 63 (2024) e202404047.

S. Garg, Z. Xie* and J.G. Chen*, “Tandem Reactors and Reactions for CO₂ Conversion”, *Nature Chemical Engineering*, 1 (2024) 139.

Z. Xie, E. Huang, S. Garg, S. Hwang, P. Liu* and J.G. Chen*, “CO₂ fixation into carbon nanofibers using electrochemical-thermochemical tandem catalysis”, *Nature Catalysis*, 7 (2024) 98.

L. Jiang, K. Li*, W.N. Porter, H. Wang, G. Li* and J.G. Chen*, “Role of H₂O in catalytic conversion of C1 molecules”, *Journal of the American Chemical Society*, 146 (2024) 2857.

P. Cao, X. Quan*, X. Nie, K. Zhao, Y. Liu, S. Chen, H. Yu and J. G. Chen*, “Metal single-site catalyst design for electrocatalytic production of hydrogen peroxide at industrial-relevant currents”, *Nature Communications*, 14 (2023) 172.

Z. Xie and J.G. Chen*, “Bimetallic-derived catalytic structures for CO₂-assisted ethane activation”, *Accounts of Chemical Research*, 56 (2023) 2447.

P. Zhai, Z. Xie, E. Huang, D.R. Aireddy, H. Yu, D.A. Cullen, P. Liu*, J.G. Chen* and K. Ding*, “CO₂-Mediated Oxidative Dehydrogenation of Propane Enabled by Pt-Based Bimetallic Catalysts”, *Chem*, 9 (2023) 3268.

A.N. Biswas, L.R. Winter, Z. Xie and J.G. Chen*, “Utilizing CO₂ as a Reactant for C₃ Oxygenate Production via Tandem Reactions”, *JACS Au*, 3 (2023) 293.

Q. Chang, Y. Liu, J.-H. Lee, D. Ologunagba, S. Hwang, Z. Xie, S. Kattel*, J.H. Lee* and J.G. Chen*, “Metal-coordinated Phthalocyanines as Platform Molecules for Understanding Isolated Metal Sites in Electrochemical Reduction of CO₂”, *Journal of the American Chemical Society*, 144 (2022) 16131.

A.N. Biswas, Z. Xie, R. Xia, S. Overa, F. Jiao* and J.G. Chen*, “Tandem Electrocatalytic-Thermocatalytic Reaction Scheme for CO₂ Conversion to C₃ Oxygenates”, *ACS Energy Letters*, 7 (2022) 2904.

I. Ro, J. Qi, S. Lee, M. Xu, X. Yan, Z. Xie, G. Zakem, A. Morales, J.G. Chen, X. Pan, D.G. Vlachos, S. Caratzoulas and P. Christopher*, “Bifunctional hydroformylation on heterogeneous Rh-WO_x pair site catalysts”, *Nature*, 609 (2022) 287.

Z. Xie, X. Wang, X. Chen, P. Liu* and J.G. Chen*, “General Descriptors for CO₂-Assisted Selective C-H/C-C Bond Scission in Ethane”, *Journal of the American Chemical Society*, 114 (2022) 4186.

A.N. Biswas, L.R. Winter, B. Loenders, Z. Xie, A. Bogaerts* and J.G. Chen*, “Oxygenate Production from Plasma-Activated Reaction of CO₂ and Ethane”, *ACS Energy Letters*, 7 (2022) 236.

Z. Xie, E. Gomez and J.G. Chen*, “Simultaneously Upgrading CO₂ and Light Alkanes into Value-added Products”, *AIChE Journal (Cover Perspective)*, 67 (2021) e17249.

Y. Wang, Y. Nian, A.N. Biswas, W. Li, Y. Han and J.G. Chen*, “Challenges and Opportunities in Utilizing MXenes of Carbides and Nitrides as Electrocatalysts”, *Advanced Energy Materials*, 11 (2021) 2002967.

L.R. Winter and J.G. Chen*, “N₂ Fixation by Plasma-Activated Processes”, *Joule*, 5 (2021) 300.

D. Wang, Z. Xie, M.D. Porosoff* and J.G. Chen*, “Recent advances in carbon dioxide hydrogenation to produce olefins and aromatics”, *Chem*, 7 (2021) 2277.

D. Tian, S.R. Denny, K. Li*, H. Wang, S. Kattel* and J.G. Chen*, “Density Functional Theory Studies of Transition Metal Carbides and Nitrides as Electrocatalysts”, *Chemical Society Reviews*, 50, (2021) 12338.

R.M. Bullock*, J.G. Chen*, L. Gagliardi*, P.J. Chirik, O.K. Farha, C.H. Hendon, C.W. Jones, J.A. Keith, J. Klosin, S. D. Minter, R.H. Morris, A.T. Radosevich, T.B. Rauchfuss, N.A. Strotman, A. Vojvodic, T.R. Ward, J.Y. Yang, and Y. Surendranath*, “Using nature’s blueprint to expand catalysis with Earth-abundant metals”, *Science*, 369 (2020) 786.

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S. Kattel*, P. Liu* and J.G. Chen*, “Tuning Selectivity of CO₂ Hydrogenation Reactions at the Metal/Oxide Interface”, *Journal of the American Chemical Society*, 139 (2017) 9739.

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