

Qiyuan Wu

Tel: 6316059966 – Email: qiyuanwu1989@gmail.com

Education	Ph.D. in materials science and engineering Stony Brook University, USA, 2017 B.E. in engineering science Stony Brook University, USA, 2012 • Graduated Manga Cum Laude B.S. in materials science Nanjing University, China, 2012	
Experience	Postdoctoral researcher	National Renewable Energy Laboratory, 2019 - current
	Research associate	Brookhaven National Laboratory, 2018 - 2019
	Research assistant	Stony Brook University, 2012 - 2017
	Teaching assistant	Stony Brook University, 2011 - 2014
Editorial	Reviewer <i>ACS Applied Materials & Interfaces</i> <i>ACS Catalysis</i> <i>Applied Surface Science</i> <i>Catalysis Today</i> <i>Chemical Communications</i> <i>Chemsuchem</i> <i>Clean Energy</i> <i>RSC Advance</i> <i>Surface Review and Letters</i>	
Awards	American Chemical Society (ACS) Graduate Student Award in Environmental Chemistry ACS ENVR travel award ACS CATL travel award Sigma Xi travel award Graduate scholarship Chinese People's scholarship	
Publications	Zhang, Z. *, Wu, Q. * , Johnson, G. *, Ye, Y., Li, X., Li, N., Cui, M., Lee, J., Liu, C., Zhao, S., Orlov, A., Murray, C., Zhang, X., Gunnoe, T., Su, D. and Zhang, S. "A Generalized Synthesis Strategy for Transition Metal Doped Brookite-Phase TiO ₂ Nanorods" <i>Journal of the American Chemical Society</i> (2019) in press (highlighted in journal cover) *equal contribution Yan, B., Zhao B., Kattel, S., Wu, Q. , Yao, S., Su, Dong., Chen, J.G. "Tuning CO ₂ hydrogenation selectivity via metal-oxide interfacial sites" <i>Journal of Catalysis</i> 374 (2019): 60-71	

Yan, D., Topsakal, M., Selcuk, S., Lyons, J.L., Zhang, W., **Wu, Q.**, Wluyo, I., Stavitski, E., Attenkofer, K., Yoo, S., Lu, D., Hybertsen, M.S., Stacchiola, D.J., and Liu, M. "Unravelling the atomic motifs in ultrathin amorphous titania capping layer over zinc oxide nanowire photocatalyst" *Nano Letters* 19.6 (2019): 3457-3463

Wang, L., Housel, L., Bock, D., Abraham, A., Dunkin, M., McCarthy, A., **Wu, Q.**, Kiss, A., Thieme, J., Takeuchi, E.S., Marschilok, A.C., Takeuchi, K.J., "Deliberate Modification of Fe₃O₄ Anode Surface Chemistry: Impact on Electrochemistry" *ACS Applied Materials & Interfaces* 11.22 (2019) 19920-19932

Xie, Z., Yan, B., Lee, J.H., **Wu, Q.**, Li, X., Zhao, B., Zhang, L., Chen, J.G. "Effects of oxide supports on the catalytic reduction of CO₂ by ethane over Pt-Ni bimetallic catalysts" *Applied Catalysis B: Environmental* 245 (2019): 376-388

Yan, B.*, **Wu, Q.***, Cen, J., Timoshenko, J., Frenkel, A.I., Su, D., Chen, X., Parise, J.B., Stach, E.A., Orlov, A., Chen, J.G. "Highly Active Subnanometer Rh Clusters Derived from Rh-doped SrTiO₃ for CO₂ Reduction" *Applied Catalysis B: Environmental* 237 (2018): 1003-1011.

*equal contribution

Cen, J., **Wu, Q.**, Yan, D., Zhang, W., Zhao, Y., Tong, X., Liu, M., Orlov, A. "New Aspects of Improving the Performance of WO₃ Thin Films for Photoelectrochemical Water Splitting by Tuning the Ultrathin Depletion Region" *RSC Advance* 9.2 (2019): 899-905

Yan, B., Yao, S., Kattel, S., **Wu, Q.**, Xie, Z., Gomez, E., Liu, P., Su, D., Chen, J.G. "Active sites for tandem reactions of CO₂ reduction and ethane dehydrogenation over CeO₂-supported NiFe catalysts" *Proceedings of the National Academy of Sciences of the United States of America* (2018): 201806950

Zhao, B., Yan, B., Jiang, Z., Yao, S., Liu, Z., **Wu, Q.**, Ran, R., Senanayake, S.D., Weng, D., Chen, J.G. "High Selectivity of CO₂ Hydrogenation to CO by Controlling the Valence State of Nickel using Perovskite" *Chemical Communications* 54.53 (2018): 7354-7357

Yao, S., Yan, B., Jiang, Z., Liu, Z., **Wu, Q.**, Lee, J.H. Chen, J.G. "Combining CO₂ Reduction with Ethane Oxidative Dehydrogenation by Oxygen-modification of Molybdenum Carbide" 8.6 *ACS Catalysis* (2018): 5374-5381 (highlighted in journal cover)

Xie, Z., Yan, B., Kattel, S., Lee, J.H., Yao, S., **Wu, Q.**, Rui, N., Gomez, E., Liu, Z., Xu, W., Zhang, L., Chen, J.G. "Dry Reforming of Methane over CeO₂-supported Pt-Co Catalysts with Enhanced Activity" *Applied Catalysis B: Environmental* 236 (2018): 280-293

Wu, Q., Quilty, C.D., Takeuchi, K.J., Takeuchi, E.S., Marschilok, A.C. "Material Design Strategies to Achieve Simultaneous High Power and High Energy Density" *MRS Advances* (2018): 1-7

Wu, Q., Yan, B., Cen, J., Timoshenko, J., Zakharov, D.N., Chen, X., Yao, S., Frenkel, A.I., Stach, E.A., Chen, J.G., and Orlov, A. "Growth of Nanoparticles with Desired Catalytic Functions by Controlled Doping-Segregation of Metal in Oxide" *Chemistry of Materials* 30.5 (2018): 1585-1592

Zhang, W., Yan, D., Li, J., **Wu, Q.**, Cen, J., Zhang, L., Orlov, A., Xin, H., Tao, J., and Liu, M. "Anomalous conductivity tailored by domain wall transport in crystalline BiVO₄ photoanodes" *Chemistry of Materials* 30.5 (2018): 1677-1685

Tackett, B.M., Sheng, W., Kattel, S., Yao, S., Yan, B., Kuttiyiel, K.A., **Wu, Q.**, Chen, J.G. "Reducing Iridium Loading in Oxygen Evolution Reaction Electrocatalysts Using Core-shell Particles with Nitride Cores" *ACS Catalysis* 8.3 (2018): 2615-2621

Dharmagunawardhane, H. N., James, A., **Wu, Q.**, Woerner, W. R., Palomino, R.M., Sinclair, A., Orlov, A., Parise, J.B. "Unexpected visible light driven photocatalytic activity without cocatalysts and sacrificial reagents from the (GaN)_{1-x}(ZnO)_x solid solution synthesized at high pressure in the entire composition range" *RSC Advances* 8.16 (2018): 8976-8982.

Wu, Q., Cen, J., Tong, X., Li, Y., Frenkel, A.I., Zhao, S., Orlov, A. "Comprehensive Study of Catalytic, Morphological and Electronic Properties of Ligand-protected Gold Nanoclusters by XPS, STM, XAFS, and TPD Techniques" *Physical Chemistry Chemical Physics* 20.3 (2018): 1497-1503

Zhao, B., Yan, B., Yao, S., **Wu, Q.**, Ran, R., Weng, D., Zhang, C., and Chen, J.G. "LaFe_{0.9}Ni_{0.1}O₃ perovskite catalyst with enhanced activity and coke-resistance for dry reforming of ethane" *Journal of Catalysis* 358 (2018): 168-178.

Zhao, S., Li, Y., Liu, D., Liu, J., Liu, Y., Zakharov, D., **Wu, Q.**, Orlov, A., Gewirth, A., Stach, E.A., Nuzzo, R., Frenkel, A. "A multimodal study of the speciations and activities of supported Pd catalysts during the hydrogenation of ethylene" *Journal of Physical Chemistry C* 121.34 (2017): 18962-18972.

Stach, E., Zhao, S., Li, Y., Liu, D., Liu, J., Liu, Y., Zakharov, D., **Wu, Q.**, Gewirth, A., Orlov, A., Nuzzo, R., Frenkel, A., " Operando and multimodal studies of speciation and activity of Pt catalysts during the hydrogenation of ethylene." *Microscopy and Microanalysis*, 23, S1 (2017): 892-893.

Zhang, W., Yan, D., Appavoo, K., Cen, J., **Wu, Q.**, Orlov, A., Sfeir, M.Y., and Liu, M. "Unravelling Photocarrier Dynamics beyond the Space Charge Region for Photoelectrochemical Water Splitting." *Chemistry of Materials* 29.9 (2017): 4036-4043.

Cen, J.*, **Wu, Q.***, Liu, M., Orlov, A. "Developing New Understanding of Photoelectrochemical Water Splitting via in-situ Techniques: A Review on Recent Progress" *Green Energy and Environment* 2.2 (2017): 100-111. *equal contribution

Sheng, W., Kattel, S., Yao, S., Yan, B., Hawxhurst, C., **Wu, Q.**, Chen, J.G. "Electrochemical Reduction of CO₂ to Synthesis Gas with Controlled CO/H₂ Ratios" *Energy and Environmental Science* 10.5 (2017): 1180-1185. (highlighted in journal cover)

Ramakrishnan, G., **Wu, Q.**, Moon, J., Orlov, A. "Reactions of SO₂ on hydrated cement particle system for atmospheric pollution reduction: A DRIFTS and XANES study" *Chemical Engineering Journal* 319 (2017): 57-64.

Cen, J., **Wu, Q.**, Yan, D., Tao, J., Kisslinger, K., Liu, M., Orlov, A. "Photoelectrochemical Water splitting with a SrTiO₃ : Nb / SrTiO₃ n+-n Homo Junction Structure." *Physical Chemistry Chemical Physics* (2017): 2760-2767.

Wu, Q., Ridge, C. J., Zhao, S., Zakharov, D., Cen, J., Tong, X., Connors, E., Su, D., Stach, E.A., Lindsay, C.M. and Orlov, A. "Development of a New Generation of Stable, Tunable, and Catalytically Active Nanoparticles Produced by the Helium Nanodroplet Deposition Method." *The Journal of Physical Chemistry Letters* 7.15 (2016): 2910-2914. (highlighted by DOE)

Zhang, Q., Tackett, B. M., **Wu, Q.**, and Chen, J.G. "Trends in Hydrogen Evolution Activity of Metal-Modified Molybdenum Carbides in Alkaline and Acid Electrolytes" *ChemElectroChem* 3 (2016): 1686.

Wu, Q., Cen, J., Goodman, K. R., White, M. G., Ramakrishnan, G., and Orlov, A. "Understanding the Interactions of CO₂ with Doped and Undoped SrTiO₃." *ChemSusChem* 9.14 (2016): 1889-1897.

Yan, D., Tao, J., Kisslinger, K., Cen, J., **Wu, Q.**, Orlov, A., and Liu, M. "The role of the domain size and titanium dopant in nanocrystalline hematite thin films for water photolysis." *Nanoscale* 7.44 (2015): 18515-18523.

Stach, E., Li, Y., Zhao, S., Gamalski, A., Zakharov, D., Tappero, R., Chen-Weigart, K., Thieme, J., Jung, U., Elsen, A., **Wu, Q.**, Orlov, A., Chen, J., Nuzzo, R., Frenkel, A., "Characterizing Working Catalysts with Correlated Electron and Photon Probes." *Microscopy and Microanalysis*, 21, S3 (2015): 563-564.

Wu, Q., Xiong, S., Shen, P., Zhao, S., Li, Y., Su, D., and Orlov, A. "Exceptional activity of sub-nm Pt clusters on CdS for photocatalytic hydrogen production: a combined experimental and first-principles study." *Catalysis Science & Technology* 5.4 (2015): 2059-2064. (highlighted in journal cover)

Dharmagunawardhane, H. N., Woerner, W. R., **Wu, Q.**, Huang, H., Chen, X., Orlov, A., Khalifah, P. G., and Parise, J. B. "Photocatalytic hydrogen evolution using nanocrystalline gallium oxynitride spinel." *Journal of Materials Chemistry A* 2.45 (2014): 19247-19252.