# *Curriculum Vitae*


## Prof. Dr. Hai-Wei Liang

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## *EMPLOYMENT*

01/2016-Present: University of Science and Technology of China (USTC), Hefei, China
Professor, Department of Chemistry
Hefei National Research Center for Physical Sciences at the Microscale

05/2012-12/2015: Max Planck Institute for Polymer Research (MPIP), Mainz, Germany
Postdoctoral Research Fellow
Advisor: Prof. Müllen Klaus and Prof. Xinliang Feng

06/2011-05/2012: University of Science and Technology of China (USTC), Hefei, China
Postdoctoral Research Fellow
Advisor: Prof. Shu-Hong Yu

## *EDUCATION*

09/2006-06/2011: University of Science and Technology of China (USTC)
Ph.D., Inorganic chemistry
Advisor: Prof. Shu-Hong Yu

09/2002-07/2006: B.S. East China Normal University (ECNU)

## *RESEARCH INTERESTS*

We focus on the design and synthesis of atomically ordered alloys (that is, intermetallic compounds) fuel cell catalysts. We propose 1) to develop synthetic methodology of small-sized atomically ordered alloy catalysts based on the thermodynamics and kinetics of the formation of intermetallic compounds and metal sintering under high temperatures, 2) to prepare highly active and durable atomically ordered alloy catalysts for cathodic oxygen reduction reaction in proton-exchange-membrane fuel cells (PEMFCs), and 3) to prepare advanced porous carbon supports for PEMFCs to meet the challenges of the local oxygen transport resistance in the low-Pt cathodes in PEMFCs.

## *SELECTED PUBLICATION*


1. Yang, C.-L.; Wang, L.-N.; Yin, P.; Liu, J.; Chen, M.-X.; Yan, Q.-Q.; Wang, Z.-S.; Xu, S.-L.; Chu, S.; Cui, C.; Ju, H.; Zhu, J.; Lin, Y.*; Shui, J. L.*; **Liang, H.-W.***, Sulfur-anchoring synthesis of platinum intermetallic nanoparticle catalysts for fuel cells. *Science* **2021**, *374* (6566), 459-464.
2. Song, T.-W.; Xu, C.; Sheng, Z.-T.; Yan, H.-K.; Tong, L.; Liu, J.; Zeng, W.-J.; Zuo, L.-J.; Yin, P.; Zuo, M.; Chu, S.-Q.; Chen, P.; **Liang, H.-W.***, Small molecule-assisted synthesis of carbon supported platinum intermetallic fuel cell catalysts. ***Nat. Commun.*** 2022, *13*, 6521.
3. Zeng, W.-J.; Wang, C.; Yan, Q.-Q.; Yin, P.; Tong, L.; **Liang, H.-W.***, Phase diagrams guide synthesis of highly ordered intermetallic electrocatalysts: separating alloying and ordering stages. ***Nat. Commun.*** 2022, *13* (1), 7654.

4. Yin, P.; Luo, X.; Ma, Y.; Chu, S.-Q.; Chen, S.; Zheng, X.; Lu, J.*; Wu, X.-J.*; **Liang, H.-W.***, Sulfur stabilizing metal nanoclusters on carbon at high temperatures. ***Nat. Commun.*** 2021, *12* (1), 3135.

5. Yin, P.; Hu, S.; Qian, K.; Wei, Z.; Zhang, L.-L.; Lin, Y.*; Huang, W.; Xiong, H.; Li, W.-X.*; **Liang, H.-W.***, Quantification of critical particle distance for mitigating catalyst sintering. ***Nat. Commun.*** 2021, *12* (1), 4865.

6. Chen, M.-X.; Zhu, M.; Zuo, M.; Chu, S.-Q.; Zhang, J.; Wu, Y.; **Liang, H.-W.***; Feng, X.*, Identification of Catalytic Sites for Oxygen Reduction in Metal/Nitrogen-Doped Carbons with Encapsulated Metal Nanoparticles. ***Angew. Chem. Int. Ed.*** 2020**,** *59* (4), 1627-1633.

7. Yan, Q.-Q.; Wu, D.-X.; Chu, S.-Q.; Chen, Z.-Q.; Lin, Y.; Chen, M.-X.; Zhang, J.; Wu, X.-J.*; **Liang, H.-W.***, Reversing the charge transfer between platinum and sulfur-doped carbon support for electrocatalytic hydrogen evolution. ***Nat. Commun.*** 2019**,** *10* (1), 4977.

8. Wang, L.; Chen, M.-X.; Yan, Q.-Q.; Xu, S.-L.; Chu, S.-Q.*; Chen, P.; Lin, Y.*; **Liang, H.-W.***, A sulfur-tethering synthesis strategy toward high-loading atomically dispersed noble metal catalysts. ***Sci. Adv.*** 2019**,** *5* (10), eaax6322.

9. Wu, Z.-Y.; Xu, S.-L.; Yan, Q.-Q.; Chen, Z.-Q.; Ding, Y.-W.; Li, C.; **Liang, H.-W.***; Yu, S.-H.*, Transition metal–assisted carbonization of small organic molecules toward functional carbon materials. ***Sci. Adv.*** 2018, 4 (7), eaat0788.

10. Li, S. C.; Hu, B. C.; Ding, Y. W.; **Liang, H. W.***; Li, C.; Yu, Z. Y.; Wu, Z. Y.; Chen, W. S.; Yu, S. H.*, Wood-Derived Ultrathin Carbon Nanofiber Aerogels. ***Angew. Chem. Int. Ed.*** 2018,57 (24), 7085-7090.