严凯

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严凯，教授，博士生导师，中山大学百人计划急需人才，国家万人计划青年拔尖人才。

课题组主要从事环境、化学与材料交叉领域的研究，研究兴趣主要涉及多相催化法转化生物质基原料为高价值化学品和液体燃料、电催化调控清洁能源转化、光电催化废物降解、能源存储等，相关研究成果已在Angew. Chem. Int. Ed., Appl. Catal. B, CEJ, Small, J. Mater. Chem., J. Clean Prod., Green Chem., Energy, Fuel, ElectroChem. Commun. ACS Sustainable Chem. Eng.等刊物上发表77篇SCI论文（第一/通讯作者65篇），其中11篇论文为ESI Top 1% 高引论文及杂志的“Top 25 Hottest Articles”，2篇入选封面论文(Front Cover)，个人H因子为26，论文SCI引用1700多次，担任两个国际期刊的区域主编和6个国际期刊的编委，为Adv. Energy Mater., JACS, Angew, ACS Catal., Appl. Catal. B, J. Catal., Green Chem., ChemsusChem, RESR，JCR, AIChE J等37个国际杂志的审稿人，先后参与欧洲杰出人才计划，德国政府Cluster of excellence, 加拿大 NSERC和美国空军部项目，与美国，加拿大、德国、英国等国家著名高校有着密切的联系与合作。

课题组具体网页：https://www.x-mol.com/groups/ky

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欢迎环境、材料、化学等学科感兴趣的本科生、硕士、博士、博士后、专职科研人员、副研究员和特聘研究员加盟。

教育经历

2008/10 - 2011 /12， 德国马普煤炭研究所、亚琛工业大学，绿色催化，博士导师(Walter Leitner 教授)

2005/09 - 2008/07， 太原理工大学，物理化学，硕士（导师 谢鲜梅 教授）
2001/09 - 2005 /07， 安徽工程大学，工程学士

工作经历

2016/12 - 至今，中山大学环境科学与工程学院，“百人计划”教授，博士生导师。
2013/12 - 2016/12，美国布朗大学，工学院, Postdoctoral Research Associate
2012/01 - 2013/11，加拿大安省政府博士后Fellowship，胡首大学
2011/06 - 2011/12，亚琛工业大学，Technical Chemistry and Petrochemistry，Chemist

科研项目

目前主要主持在研项目：

1. 国家万人计划青年拔尖人才项目，2019.01-20212
2. 国家重点研发子课题，农业废弃物资源化，2018.07-2020.08
3. 国家自然科学基金面上项目，绿色合成纳米双金属RuNi催化剂在转化生物质基乙酰丙酸为液体燃料戊酸戊酯中的研究，2018.01-2021.12
4. 中山大学“百人计划”启动项目，生物质资源化，2016.12-2019.12 (已结题)
5. 广东省重点研发计划，生活垃圾资源化能源化，2019.10-2022.10
6. 广东省联合基金重点项目，有机固废化学转化技术与机理，2020.01-2022.12
7. 广东省自然科学基金面上项目，生物质基原料清洁转化机制研究，2019.10-2021.10
8. 中央高校青年教师重点培育项目，生物质基原料高值化研究，2019.01-2020.12

研究领域

1. 催化降解生物质基原料为高价值化学品和Biofuels
2. 固体废物控制与资源化
3. 光、电催化清洁能源转化与存储（如水分解，电容器等）
4. 光、电降解污染物（如抗生素等）

获奖情况

2019年获国际IAAM Medal Award
2019年获RSC Top 1%高被引中国学者
2019年获广东省环境学会生态青年科技奖
2013年获Emerging Scientist Award
2012年加拿大安省政府博士后Fellowship
2008年获 德国马普协会全额奖学金
2008年获山西省优秀毕业生
2007年获武尽杰冀照明一等奖学金
2005年全国大学生英语写作大赛安徽省三等奖

部分代表性论文(* 通讯联系人，https://www.x-mol.com/groups/ky)

Book chapters

1. K. Yan,* et al. Recent development of metal nanoparticles catalysts and their use for efficient hydrogenation of biomass-derived levulinic acid in “Green Processes for Nanotechnology: From Inorganic to Bioinspired Nanomaterials”, Edited by Vladimir A. Basiuk and Elena V. Basiuk. Springer. 2016.

2. K. Yan,* et al. Producton of gamma-valerolactone from biomass in “Production of Platform Chemicals from Renewable Resources”. Edited by Zhen Fang, Richard L. Smith, Jr., Xinhua Qi. Springer. 2017.

3. Z. Yi, A. Wang, S. Wang, R. Li, R. Qiu, K. Yan,* H. Luo*. “Selective Hydrogenation of Furfural and Levulinic Acid to Biofuel” in《Biofuels》 (Central West Publishing. 2018.)

Articles

1. . M. Zhang, Y. Liu, B. Liu, Z. Chen, H. Xu, K. Yan*, Trimetallic NiCoFe-Layered Double Hydroxides Nanosheets Efficient for Oxygen Evolution and Highly Selective Oxidation of Biomass-Derived 5-Hydroxymethylfurfural. ACS Catalysis 2020, 10, 5179. https://pubs.acs.org/doi/10.1021/acscatal.0c00007

2. Z. Yi, D. Hu, H. Xu, Z. Wu, M. Zhang, K. Yan,* Metal regulating the highly selective synthesis of gamma-valerolactone and valeric biofuels from biomass-derived levulinic acid. Fuel 2020, 259, 116208.

3. A. Wang, Z. Chen, Z. Zheng, H. Xu, H. Wang, K. Hu, K. Yan,* Remarkably enhanced sulfate radical-based photo-Fenton-like degradation of levofloxacin using the reduced mesoporous MnO@ MnOx microspheres. Chemical Engineering Journal 2020, 379, 122340, https://www.sciencedirect.com/science/article/pii/S1385894719317437

4. R. Li, D. Hu, K. Hu, H. Deng, M. Zhang, A. Wang, R. Qiu, K. Yan*, Coupling adsorption-photocatalytic reduction of Cr(VI) by metal-free N-doped carbon. Science of The Total Environment 2020, 704, 135284. https://www.sciencedirect.com/science/article/pii/S0048969719352763

5. K. Hu, D. Hu, M. Zhang, R. Qiu, K. Yan*, Facile synthesis of Z-scheme composite of TiO2 nanorod/g-C3N4 nanosheet efficient for photocatalytic degradation of ciprofloxacin. Journal of Cleaner Production, 2020, 253, 120055, https://www.sciencedirect.com/science/article/pii/S0959652620301025

6. M. Zhang, Y. He, D. Yan, H. Xu, A. Wang, Z. Chen, S. Wang, H. Luo*, K. Yan*. Multifunctional 2H-TaS2 nanoflakes for efficient supercapacitors and electrocatalytic evolution of hydrogen and oxygen. Nanoscale, 2019, 11, 22255, https://pubs.rsc.org/en/content/articlelanding/2019/nr/c9nr07564j#!divAbstract

7. A. Wang, Z. Zheng, R. Li, D. Hu, Y. Lu, H. Luo, K. Yan*, Biomass-derived porous carbon highly efficient for removal of Pb(II) and Cd(II). Green Energy and Environment, 2019.(封面论文), 4: 414. https://www.sciencedirect.com/science/article/pii/S2468025719300184

8. D. Hu, H. Xu, Z. Yi, Z. Chen, C. Ye, Z. Wu, H.F. Garces, K. Yan*, Green CO2-assisted synthesis of mono-and bimetallic Pd/Pt nanoparticles on porous carbon fabricated from sorghum for highly selective hydrogenation of furfural. ACS Sustain. Chem. Eng. 2019, 7, 15339. https://pubs.acs.org/doi/10.1021/acssuschemeng.9b02665

9. Z. Yi, H. Xu, D. Hu, K. Yan*, Facile synthesis of supported Pd catalysts by chemical fluid deposition method for selective hydrogenation of biomass-derived furfural. Journal of Alloys and Compounds 2019, 799, 59. https://www.sciencedirect.com/science/article/pii/S0925838819320420

10. A. Wang, M. Zhang, H. Li, F. Wu, K. Yan*, J Xiao*, Combination of Theory and Experiment Achieving a Rational Design of Electrocatalysts for Hydrogen Evolution on the Hierarchically Mesoporous CoS2, Microsphere. J. Phys. Chem. C, 2019, 13428-13433. https://pubs.acs.org/doi/10.1021/acs.jpcc.9b01814

11. Z. Yi, C. Ye, M. Zhang, Y. Lu, Y. Liu, L. Zhang, K. Yan*, One-pot synthesis of etched CoMn-layered double hydroxides efficient for oxygen evolution reaction. Applied Surface Science, 2019, 480, 256-261. https://www.sciencedirect.com/science/article/pii/S0169433219305847

12. A. Wang, H. Wang, H. Deng, S. Wang, W. Shi, Z. Yi, R. Qiu, K. Yan*, Controllable synthesis of mesoporous manganese oxide microsphere efficient for photo-Fenton-like removal of fluoroquinolone antibiotics. Applied Catalysis B: Environmental, 2019, 248, 298-308. https://www.sciencedirect.com/science/article/pii/S0926337319301511

13. Y. Liu, M. Zhang, D. Hu, R. Li, K. Hu, K. Yan*. Ar Plasma Exfoliated Ultrathin NiCo-Layered Double Hydroxides Nanosheets for Enhanced Oxygen Evolution. ACS Applied Energy Materials, 2019, 2, 1162. https://pubs.acs.org/doi/10.1021/acsaem.8b01717?mobileUi=0

14. A. Wang#, K. Hu#, Y. Liu, R. Li, C. Ye, Z. Yi, K. Yan*. Flower-like MoS2 with stepped edge structure efficient for electrocatalysis of hydrogen and oxygen evolution. International Journal of Hydrogen Energy, 2019. 44, 6573. https://www.sciencedirect.com/science/article/pii/S0360319919303593

15. A. Wang, Z. Zhao, D. Hu, J. Niu, M. Zhang, K. Yan*, G Lu. Tuning the oxygen evolution reaction on a nickel-iron alloy via active straining. Nanoscale, 2019, 11, 426-430. https://pubs.rsc.org/en/content/articlelanding/2019/nr/c8nr08879a#!divAbstract

16. Y. He, D. Yan, L.R Ng, L. Shi, S. Wang, H. Lin, S.H. Lin, H. Luo*, K Yan*, Topological metal and noncentrosymmetric superconductor α-BiPd as an efficient candidate for the hydrogen evolution reaction. Materials Chemistry Frontiers 2019, 3, 2184-2189. https://pubs.rsc.org/en/content/articlelanding/2019/qm/c9qm00410f#!divAbstract

17. R. Li, Y. Liu, H. Li, M. Zhang, Y. Lu, L. Zhang, J. Xiao, F. Boehm, K. Yan,* One-Step Synthesis of NiMn-Layered Double Hydroxide Nanosheets Efficient for Water Oxidation. Small Methods. 3(2019) 1800344. https://onlinelibrary.wiley.com/doi/full/10.1002/smtd.201800344

18. A. Wang, H. Li, J. Xiao, Y. Lu, M. Zhang, K. Hu, K. Yan,* Integration of Theory and Experiment on Mesoporous Nickel Sulfide Microsphere for Hydrogen Evolution Reaction, ACS Sustainable Chemistry & Engineering. 2018, 6, 15995-16000. https://pubs.acs.org/doi/abs/10.1021/acssuschemeng.8b04148

19. K. Hu, J. Zhou, Z. Yi, C. Ye, H. Dong, K. Yan,* Facile synthesis of mesoporous WS2 for water oxidation. Applied Surface Science, 2019，465，351-356.

20. A. Wang, H. Li, J. Xiao, Y. Lu, M. Zhang, K. Hu, K. Yan*. Integration of Theory and Experiment on Mesoporous Nickel Sulfide Microsphere for Hydrogen Evolution Reaction. ACS Sustainable Chemistry & Engineering 2018, 6, 15995, https://pubs.acs.org/doi/10.1021/acssuschemeng.8b04148

21. Y. Qiao, N. Said, M. Rauser, K. Yan, F. Qin, N. Theyssen, W. Leitner*, Preparation of SBA-15 supported Pt/Pd bimetallic catalysts using supercritical fluid reactive deposition: how do solvent effects during material synthesis affect catalytic properties? Green Chem., 2017, 19, 977.

22. K. Yan, T. Adit Maark, A. Khorshidi, A. Peterson*, P. Guduru,* The Influence of Elastic Strain on Catalytic Activity in the Hydrogen Evolution Reaction. Angew. Chem. Int. Ed. 2016, 55, 6175-6181; German Version: 2016, 128, 6283.

23. K. Yan,* Y. Lu. Direct growth of MoS2 microsphere on Ni foam as a hybrid nanocomposite efficient for oxygen evolution reaction. Small 2016, 12, 2975.

24. K. Yan,* Y. Yang, et al. Facile synthesis of thin NiFe-layered double hydroxides nanosheets efficient for oxygen evolution. Electrochem. Commun. 2016, 62, 24.

25. K. Yan,* Y. Yang, et al. Catalytic reactions of gamma-valerolactone: a feedstock for fuels dna chemicals. Appl. Catal. B: Environ. 2015, 179, 292.

26. K. Yan, T. lafleu, et al. Cascade upgrading of gamma-valerolactone to biofuels. Chem. Commun. 2015, 51, 6894.

27. K. Yan,* C. Jarvis, et al. Production and Catalytic Transformation of Levulinic Acid: A Platform for Fuels and Commodity Chemicals. Renew. Sustain. Energy Rev. 2015, 51, 986. .

28. K. Yan, G. Wu.* Titanium Dioxide Microsphere-Derived Materials for Solar Fuel Hydrogen Generation. ACS Sustain. Chem. Eng. 2015, 3, 779.

29. K. Yan, G. Wu, C. Jarvis, et al. Facile synthesis of porous microspheres composed of TiO2 nanorods with high photocatalytic activity for hydrogen production. Appl. Catal. B: Environ. 2014, 148, 281.

30. K. Yan,* G. Wu, et al. Production, properties and catalytic hydrogenation of furfural to fuel additives and value-added chemicals. Renew. Sustain. Energy Rev. 2014, 38, 663.

31. K. Yan,* G. Wu, et al. Clean and selective production of γ-valerolactone from biomass-derived levulinic acid catalyzed by recyclable Pd nanoparticle catalyst. J. Clean. Prod. 2014, 72, 230.

32. K. Yan,* A. Chen. Selective hydrogenation of furfural and levulinic acid to biofuels on the ecofriendly Cu-Fe catalyst. Fuel 2014, 115, 101.

33. G. Wu, S. Thind, J. Wen, K. Yan, et al. A novel nanoporous <alpha>-C3N4 photocatalyst with superior high visible light activity. Appl. Catal. B: Environ. 2013, 142–143, 590.

34. K. Yan,* A. Chen. Efficient hydrogenation of biomass-derived furfural and levulinic acid on the facilely synthesized noble-metal-free Cu-Cr catalyst. Energy 2013, 58, 357

35. K. Yan,* T Lafleur, et al. Highly selective production of value-added γ-valerolactone from biomass-derived levulinic acid using the robust Pd nanoparticles. Appl. Catal. A Gen. 2013, 468, 52.

常用链接

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中山大学环境科学研究所

清洁生产与循环经济研究中心

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