Yi-Fan Han

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Professional field: Chemical Engineering and Technology
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Profile

Education

1997: PhD, Chemical Engineering, East China University, Science and Technology, China.

1994: MS. Physical Chemistry, East China Normal University, China.

Academic Experience

2009-present: ECUST, Professor.

2004-2009: Institute of Chemical and Engineering Sciences, Singapore, Senior Research Fellow.

2003-2004: Texas A&M University, College Station, Postdoctoral Research Associate.

1999-2003: Ulm University, Germany, Post-doctor.

1997-1999: Fudan University, China, Post-doctor.

Research Field

1. Design and preparation of catalyst for coal chemical industry
2. Preparation and in-situ characterization of nano-sized catalysts
3. Dynamic in situ molecular spectroscopy (Operando) characterization

Research results and selected published papers

(1)Zhengpai Zhang, Jun Zhang, Xu Wang, Rui Si, Jing Xu*, Yi-Fan Han*, Promotional Effects of Multi-Walled Carbon Nanotube on Iron Catalysts for Fischer-Tropsch to Olefins, J. Catal., 2018, 365,71-85

(2)Xiao-man Zhang, Pengfei Tian, Weifeng Tu, Zhenzhou Zhang, Jing Xu,* and Yi-Fan Han*, “Tuning the Dynamic Interfacial Structure of Copper-Ceria Catalysts by Indium Oxide during CO Oxidation”, ACS Catal., 2018, 8, 5261-5275

(3)Yulong Zhang, Donglong Fu, Xianglin Liu, Zhengpai Zhang, Chao Zhang, Bianfang Shi, Jing Xu*, and Yi-Fan Han*, “Operando Spectroscopic Study of Dynamic Structure of Iron Oxide Catalysts during CO2 Hydrogenation”, ChemCatChem, 2017, 10,1272

(4)Pengfei Tian, Xingyan Xu, Jing Xu*, Yi-fan Han*. 'Direct and Selective Synthesis of Hydrogen Peroxide over Palladium–Tellurium Catalysts at Ambient Pressure.'Chemsuschem, 2017,10,3342-3346

(5)Yiyi Sheng, Yang Sun, Jing Xu*, Jie Zhang, Yi-fan Han*. 'Fenton-like degradation of rhodamine B over highly durable Cu-embedded alumina: Kinetics and mechanism.' AIChE Journal, 2018,64,538-549

(6)Zhengpai Zhang, Weiwei Dai, Xinchao Xu, Jun Zhang, Bianfang Shi, Jing Xu*, Weifeng Tu, Yi-fan Han*. “MnOx Promotional Effects on Olefins Synthesis Directly from Syngas over Bimetallic Fe-MnOx/SiO2 Catalysts.” AIChE Journal., 2017,63,4451-4464

(7)Pengfei Tian, Like Ouyang, Xingyan Xu, Can Ao, XinchaoXu, Rui Si, Xiangjian Shen, Ming Lin, Jing Xu and Yi-Fan Han*, “The origin of the palladium particle size effects in the direct synthesis of H2O2: Is smaller better?”, J. Catal, 2017, 349, 30-40

(8)Can Ao, Pengfei Tian, Like Ouyang, Guojin Da, Xingyan Xu, Jing Xu and Yi-fan Han*, 'Dispersing Pd nanoparticles on N-doped TiO2: a highly selective catalyst for H2O2 synthesis', Catal. Sci. & Technol., 2016, 6 (13), 5060-5068.

(9)Xue-jing Yang, Peng-fei Tian, Hua-lin Wang, Jing Xu, Yi-fan Han*, 'Catalytic decomposition of H2O2 over a Au/carbon catalyst: A dual intermediate model for the generation of hydroxyl radicals', J. Catal., 2016, 336, 126-132.

(10)Xiao-man Zhang, Ya-Qing Deng, Pengfei Tian, Huan-huan Shang, Jing Xu, Yi-fan Han*, 'Dynamic active sites over binary oxide catalysts: In situ/operando spectroscopic study of low-temperature CO oxidation over MnOx-CeO2 catalysts', Appl. Catal. B: Environ., 2016, 191, 179-191.

(11)Yulong Zhang, Donglong Fu, Xingyan Xu, Yiyi Sheng, Jing Xu, Yi-fan Han*, 'Application of operando spectroscopy on catalytic reactions', Curr. Opin. Chem. Eng., 2016, 12, 1-7.

(12)Junjie Su, Zhengpai Zhang, Donglong Fu, Da Liu, Xin-Chao Xu, Bianfang Shi, Xu Wang, Rui Si, Zheng Jiang, Jing Xu, Yi-Fan Han*, 'Higher alcohols synthesis from syngas over CoCu/SiO2 catalysts: Dynamic structure and the role of Cu', J. Catal., 2016, 336, 94-106.

(13)Xin Yu, Ting Wu, Xue-Jing Yang, Jing Xu, Jordan Auzam, Raphael Semiat, Yi-Fan Han*, 'Degradation of trichloroethylene by hydrodechlorination using formic acid as hydrogen source over supported Pd catalysts', J. Hazard Mater., 2016, 305, 178-189.

(14)Xue-jing Yang, Xi-meng Xu, Xin-chao Xu, Jing Xu, Hua-lin Wang, Raphael Semiat, Yi-fan Han*, 'Modeling and kinetics study of Bisphenol A (BPA) degradation over an FeOCl/SiO2 Fenton-like catalyst', Catal. Today, 2016, 276, 85-96.

(15)Jun Zhang, Zhengpai Zhang, Junjie Su, Donglong Fu, Weiwei Dai, Da Liu, Jing Xu, Yi-fan Han*, 'Effect of support basicity on iron-based catalysts for Fischer-Tropsch synthesis', CIESC J., 2016, 67(2), 549-556.

(16)Wei Mao, Junjie Su, Zhengpai Zhang, Xin-Chao Xu, Weiwei Dai, Donglong Fu, Jing Xu, Xinggui Zhou, Yi-Fan Han*, 'Kinetics study of C2+ oxygenates synthesis from syngas over Rh–MnOx/SiO2 catalysts', Chem. Eng. Sci., 2015, 135, 312-322.

(17)Wei Mao, Junjie Su, Zhengpai Zhang, Xin-Chao Xu, Donglong Fu, Weiwei Dai, Jing Xu, Xinggui Zhou, Yi-Fan Han*, 'A mechanistic basis for the effects of Mn loading on C2+ oxygenates synthesis directly from syngas over Rh–MnOx/SiO2 catalysts', Chem. Eng. Sci., 2015, 135, 301-311.

(18)Xin-Chao Xu, Junjie Su, Pengfei Tian, Donglong Fu, Weiwei Dai, Wei Mao, Wei-Kang Yuan, Jing Xu and Yi-Fan Han*, 'First-Principles Study of C2 Oxygenates Synthesis Directly from Syngas over CoCu Bimetallic Catalysts', J. Phys. Chem. C, 2015, 119(1), 216–227.

(19)Donglong Fu, Weiwei Dai, Xin-Chao Xu, Wei Mao, Junjie Su, Zhengpai Zhang, Bianfang Shi, Julian Smith, Ping Li, Jing Xu and Yi-Fan Han*, 'Probing The Structure Evolution of Iron-Based Fischer–Tropsch to Produce Olefins by Operando Raman Spectroscopy', ChemCatChem, 2015, 7(5), 752–756.

(20)Weiwei Dai, Da Liu, Donglong Fu, Zhengpai Zhang, Jun Zhang, Jing Xu and Yi-Fan Han*, 'Kinetics study of Fischer-Tropsch reaction to lower olefins over MnOx-promoted Fe/SiO2 catalysts', CIESC J., 2015, 66(9), 3444-3455.

(21)Like Ouyang, Peng-fei Tian, Guo-jin Da, Xin-chao Xu, Can Ao, Tian-yuan Chen, Rui Si, Jing Xu, Yi-Fan Han*, 'The origin of active sites for direct synthesis of H2O2 on Pd/TiO2 catalysts: Interfaces of Pd and PdO domains', J. Catal., 2015, 321, 70-80.

(22)Xue-jing Yang, Peng-fei Tian, Xiao-man Zhang, Xin Yu, Ting Wu, Jing Xu and Yi-Fan Han*, 'The generation of hydroxyl radicals by hydrogen peroxide decomposition on FeOCl/SBA-15 catalysts for phenol degradation', AIChE J., 2015, 61(1), 166-175.

(23)Like Ouyang, Longfei Tan, Jing Xu, Peng-fei Tian, Guo-jin Da, Xue-jing Yang, Dong Chen, Fangqiong Tang, Yi-Fan Han*, 'Functionalized silica nanorattles hosting Au nanocatalyst for direct synthesis of H2O2', Catal. Today, 2015, 248, 28-34.

(24)Jing Xu, Ya-Qing Deng, Xiao-Man Zhang, Yan Luo, Wei Mao, Xue-Jing Yang, Like Ouyang, Pengfei Tian, and Yi-Fan Han*, 'Preparation, Characterization, and Kinetic Study of a Core–Shell Mn3O4@SiO2 Nanostructure Catalyst for CO Oxidation', ACS Catal., 2014, 4(11), 4106-4115.

(25)Junjie Su, Wei Mao, Xin-Chao Xu, Zhen Yang, Honglin Li, Jing Xu and Yi-Fan Han*, 'Kinetic study of higher alcohol synthesis directly from syngas over CoCu/SiO2 catalysts', AIChE J. , 2014, 60, 1797–1809.

(26)Junjie Su, Wei Mao, Zhen Yang, Jing Xu, Yi-Fan Han*, 'Kinetics of CoCu/SiO2 for Synthesis of Lower Carbon Mixed Alcohols Directly from Syngas', CIESC J., 2014, 65(1), 143-151.

(27)Like Ouyang, Guo-jin Da, Peng-fei Tian, Tian-yuan Chen, Guo-da Liang, Jing Xu, Yi-Fan Han*, 'Insight into active sites of Pd–Au/TiO2 catalysts in hydrogen peroxide synthesis directly from H2 and O2', J. Catal., 2014, 311, 129-136.