

Curriculum Vitae

Hua Zhang

Postdoctoral Research Associate
School of Pharmacy, University of Wisconsin-Madison
5211 Rennebohm Hall, 777 Highland Ave
Madison, WI 53705 United States
Email: h Zhang775@wisc.edu
Phone: (608)9774376

Highlights:

- Mass Spectrometry Imaging for Disease Biomarker Discovery
- Development and Application of Novel Ambient Mass Spectrometry Technologies
- 40 Scientific Papers, 15 of Which Act as the First or Corresponding Author

Education

Ph.D. Jilin University, Changchun, China, 2016-2019
July 2019 Chemistry major (Inorganic chemistry)
M.S. East China University of Technology, Nanchang, China, 2013-2016
July 2016 Chemistry major (Analytical chemistry)
B.S. East China University of Technology, Nanchang, China, 2009-2013
June 2013 Biotechnology major

Professional Experience

Sep 2019-Present: Postdoctoral Research Associate

University of Wisconsin-Madison, School of Pharmacy
Advisor: [Prof. Lingjun Li](#)

Project: Development of novel mass spectrometry imaging approaches for disease biomarker discovery

Sep 2016-Aug 2019: Graduate Research Assistant

Jilin University, College of Chemistry
Advisor: [Prof. Huanwen Chen](#)

Project: Functional materials based direct ionization mass spectrometry for rapid analysis of complex biological samples

Sep 2013-Aug 2016: Graduate Research Assistant

East China University of Technology, School of Chemistry, Biology and Material Science
Advisor: [Prof. Huanwen Chen](#)

Project: Internal extractive electrospray ionization mass spectrometry: mechanism study and the applications to biological analysis

Honors and Awards

2019 Academic Performance Scholarship of Graduate Student in Jilin University (8,000 CNY)
2019 The 13th Graduate Student Elite Cup Academic Achievement Competition of Jilin University (1,500 CNY)
2018 Academic Performance Scholarship of Graduate Student in Jilin University (5,400 CNY)
2018 The 11th Doctoral Academic Forum, Chemistry Sub-forum Oral Report Award of Jilin University (1000 CNY)

2017 “Poster Award” of the 3rd National Conference on Mass Spectrometry of Chinese Chemical Society, Xiamen, December 08-11, 2017. (1,000 CNY)

2016 The 10th China Youth Science and Technology Innovation Award (20,000 CNY)

2016 Excellent Graduate Student of East China University of Technology (2,000 CNY)

2015 First-Class Comprehensive Scholarship of Jiangxi Province Key Laboratory of Mass Spectrometry Science and Instrumentation (15,000 CNY)

2015 “Youth Presentation Award” of the 2nd National Mass Spectrometry Analytical Symposium of Chinese Chemical Society, Hangzhou, October 16-19, 2015. (1,500 CNY)

2015 First-Class Scholarship for Graduate Students of East China University of Technology (2,000 CNY)

2015 Outstanding Graduate Student of East China University of Technology (800 CNY)

2014 National Graduate Scholarship of China (20,000 CNY)

2014 First-Class Comprehensive Scholarship of Jiangxi Province Key Laboratory of Mass Spectrometry Science and Instrumentation (15,000 CNY)

2014 “SHIMADZU Travel Award” and “ACS Publications Poster Award” of the 5th Asia Oceania Mass Spectrometry Conference (AOMSC), Beijing, July 15-19, 2014. (2,500 CNY)

2014 First-Class Scholarship for Graduate Students of East China University of Technology (2,000 CNY)

2014 Outstanding Graduate Student of East China University of Technology (800 CNY)

Publications

1. **Hua Zhang**, Xudong Shi, Zihui Li, Meng Xu, Yuan Liu, Lingjun Li*, Quantification and molecular imaging of fatty acids isomers from biological samples enabled by peracetic acid induced epoxidation. *Manuscript in preparation*.
2. **Hua Zhang**, Xudong Shi, Nhu Q Vu, Gongyu Li, Zihui Li, Yatao Shi, Miyang Li, Bin Wang, Nathan V Welham, Manish S Patankar, Paul Weisman, Lingjun Li*, On-tissue derivatization with Girard’s reagent P enhances N-glycan signals for formalin-fixed paraffin-embedded tissue sections in MALDI mass spectrometry imaging. *Analytical Chemistry*, 2020, 92(19): 13361-13368. **Featured as an ACS Editor’s Choice Article and is available open access**, <https://pubs.acs.org/doi/pdf/10.1021/acs.analchem.0c02704>
3. **Hua Zhang**, Konstantin Chingin, Jiajia Li, Haiyan Lu, Keke Huang*, Huanwen Chen*, Selective Enrichment of Phosphopeptides and Phospholipids from Biological Matrixes on TiO₂ Nanowire Arrays for Direct Molecular Characterization by Internal Extractive Electrospray Ionization Mass Spectrometry. *Analytical Chemistry*, 2018, 90(20): 12101-12107.
4. **Hua Zhang**, Haiyan Lu, Konstantin Chingin, Huanwen Chen*, Stabilization of proteins and noncovalent protein complexes during electrospray ionization by amino acid additives. *Analytical Chemistry*, 2015, 87(14): 7433-7438.
5. **Hua Zhang**, Konstantin Chingin, Liang Zhu, Huanwen Chen*, Molecular characterization of ongoing enzymatic reactions in raw garlic cloves using extractive electrospray ionization mass spectrometry. *Analytical Chemistry*, 2015, 87(5): 2878-2883.
6. **Hua Zhang**, Haiyan Lu, Keke Huang, Jiajia Li, Feng Wei, Aiyang Liu, Konstantin Chingin*, Huanwen Chen*, Selective detection of phospholipids in human blood plasma and single cells for cancer differentiation using dispersed solid-phase microextraction combined with extractive electrospray ionization mass spectrometry. *Analyst*, 2020, 145(22): 7330-7339.
7. **Hua Zhang**, Wei Kou, Aisha Bibi, Qiong Jia, Rui Su, Huanwen Chen*, Keke Huang*, Internal extractive electrospray ionization mass spectrometry for quantitative determination of fluoroquinolones captured by magnetic molecularly imprinted polymers from raw milk. *Scientific Reports*, 2017, 7, 14714.

8. **Hua Zhang**, Yi Li, Kun Liu, Liang Zhu, Huanwen Chen*, Selective molecular characterization of particulate matter from gasoline cars using internal extractive electrospray ionization mass spectrometry. *Analytical Methods*, 2017, 9(46): 6491-6498.
9. **Hua Zhang**, Aisha Bibi, Haiyan Lu, Jing Han, Huanwen Chen*, Comparative study on ambient ionization methods for direct analysis of navel orange tissues by mass spectrometry. *Journal of Mass Spectrometry*, 2017, 52(8): 526-533.
10. **Hua Zhang**, Haiyan Lu, Haichun Huang, Jianchuan Liu, Xiaowei Fang, Bi-Feng Yuan, Yu-Qi Feng*, Huanwen Chen*, Quantification of 1-hydroxypyrene in undiluted human urine samples using magnetic solid-phase extraction coupled with internal extractive electrospray ionization mass spectrometry. *Analytica Chimica Acta*, 2016, 926: 72-78.
11. **Hua Zhang**, Liang Zhu, Huanwen Chen*, Direct molecular analysis of garlic using internal extractive electrospray ionization mass spectrometry. *Chinese Journal of Analytical Chemistry*, 2014, 42(11): 1634-1638.
12. **Hua Zhang**, Liang Zhu, Liping Luo, Nannan Wang, Konstantin Chingin, Xiali Guo, Huanwen Chen*, Direct assessment of phytochemicals inherent in plant tissues using extractive electrospray ionization mass spectrometry. *Journal of Agricultural and Food Chemistry*, 2013, 61(45): 10691-10698.
13. **Hua Zhang**, Haiwei Gu, Feiyan Yan, Nannan Wang, Yiping Wei, Jianjun Xu, Huanwen Chen*, Direct characterization of bulk samples by internal extractive electrospray ionization mass spectrometry. *Scientific Reports*, 2013, 3: 2495.
14. **Hua Zhang**, Bin Jia, Jiang Wang, Shuiping Yang, Huanwen Chen*, Surface desorption atmospheric pressure chemical ionization mass spectrometry for rapid detection of cocaine in mashed potato samples. *Life Science Instruments*, 2011, 1.
15. Ayami Ohno Kishimoto, Yo Kishimoto, Xudong Shi, Elizabeth B. Hutchinson, **Hua Zhang**, Yatao Shi, Gisele Oliveira, Lingjun Li, Nathan V. Welham*, Ian J. Rowland*, High-resolution magnetic resonance and mass spectrometry imaging of the human larynx, The Laryngoscope, *Manuscript submitted*.
16. Aiyong Liu, **Hua Zhang***, Jianhua Ding, Wei Kou, Fei Yan, Keke Huang*, Huanwen Chen, Enrichment of phospholipids using magnetic Fe₃O₄/TiO₂ nanoparticles for quantitative detection at single cell levels by electrospray ionization mass spectrometry. *Talanta*, 2020, 212: 120769.
17. Aiyong Liu#, Wei Kou#, **Hua Zhang**, Jiaquan Xu, Lixue Zhu, Siliang Kuang, Keke Huang*, Huanwen Chen, Qiong Jia*, Quantification of Trace Organophosphorus Pesticides in Environmental Water via Enrichment by Magnetic-Zirconia Nanocomposites and Online Extractive Electrospray Ionization Mass Spectrometry. *Analytical Chemistry*, 2020, 92(5): 4137-4145.
18. Haiyan Lu, **Hua Zhang**, Yipo Xiao, Konstantin Chingin, Chao Dai, Feng Wei, Nanya Wang, Vladimir Frankevich, Vitaly Chagovets, Fan Zhou*, Huanwen Chen*, Comparative study of alterations in phospholipid profiles upon liver cancer in humans and mice. *Analyst*, 2020, 145(20): 6470-6477.
19. Haiyan Lu, **Hua Zhang**, Yiping Wei, Huanwen Chen*, Ambient mass spectrometry for the molecular diagnosis of lung cancer. *Analyst*, 2020, 145(2): 313-320.
20. Yufen Wang, Haiyan Lu, **Hua Zhang**, Huanwen Chen*, Recent Progress on Tissue Analysis by Mass Spectrometry without Sample Pretreatment. *Chinese Journal of Analytical Chemistry*, 2020, 48(7): 827-837.
21. Yuying Liang, Yunfei Ding, Yanchen Liu*, Jianming Yang, **Hua Zhang**, Modeling Microstructure Effect on Thermal Conductivity of Aerogel-Based Vacuum Insulation Panels. *Heat Transfer Engineering*, 2020, 41(9-10): 882-895.
22. Haiyan Lu, **Hua Zhang**, Konstantin Chingin, Yiping Wei, Jiaquan Xu, Mufang Ke, Keke Huang, Shouhua Feng*, Huanwen Chen*, Sequential detection of lipids, metabolites, and proteins in one tissue for improved cancer differentiation accuracy. *Analytical Chemistry*, 2019, 91(16): 10532-10540.

23. Mufang Ke, **Hua Zhang**, Jianhua Ding, Xingchuang Xiong, Fenglei Li, Konstantin Chingin, Wei Kou, Aiyong Liu, Tenggao Zhu, Xiang Fang*, Huanwen Chen*, Generating Supercharged Protein Ions for Breath Analysis by Extractive Electrospray Ionization Mass Spectrometry. *Analytical Chemistry*, 2019, 91(5): 3215-3220.
24. Susu Shen, **Hua Zhang**, Keke Huang*, Huanwen Chen, Wenxin Shen, Xiaowei Fang*, Differentiation of cultivation areas and crop years of milled rice using single grain mass spectrometry. *New Journal of Chemistry*, 2019, 43(5): 2118-2125.
25. Jing Han, Wei Liu, Rui Su, Lixue Zhu, Debo Wu*, Jiaquan Xu, Aiyong Liu, **Hua Zhang**, Wei Kou, Xiaoping Zhang, Shuiping Yang, Coupling of micro-solid-phase extraction and internal extractive electrospray ionization mass spectrometry for ultra-sensitive detection of 1-hydroxypyrene and papaverine in human urine samples. *Analytical and bioanalytical chemistry*, 2019, 411(15): 3281-3290.
26. Haiyan Lu, **Hua Zhang**, Konstantin Chingin, Jianliang Xiong, Xiaowei Fang, Huanwen Chen*, Ambient mass spectrometry for food science and industry. *TrAC Trends in Analytical Chemistry*, 2018, 107: 99-115.
27. Jiaquan Xu, Tenggao Zhu, Konstantin Chingin, Yuhui Liu, **Hua Zhang**, Huanwen Chen*, Sequential Formation of Analyte Ions Originated from Bulk Alloys for Ambient Mass Spectrometry Analysis. *Analytical Chemistry*, 2018, 90(23): 13832-13836.
28. Wei Kou, **Hua Zhang**, Haiyan Lu, Lixue Zhu, Aiyong Liu, Keke Huang, Huanwen Chen*, Determination of Phospholipids in Soybean by Titanium Dioxide Nanowires Array Enrichment Combined with Internal Extractive Electrospray Ionization Mass Spectrometry. *Chinese Journal of Analytical Chemistry*, 2018, 46(12): 1913-1922.
29. Meng Wang, Xiaofeng Wu, Keke Huang, Yu Sun, Yuan Zhang, **Hua Zhang**, Jingjing He, Huanwen Chen, Jianhua Ding, Shouhua Feng*, Enhanced solar water-splitting activity of novel nanostructured Fe₂TiO₅ photoanode by electrospray and surface F-modification. *Nanoscale*, 2018, 10(14): 6678-6683.
30. Da-peng Liang, Yuan-ping Fang, Wen-jie Liu, **Hua Zhang**, Yan-ting Qiu, Yi-ming Dong, Yang Ning*, Direct Detection of Di-2-ethylhexy Phthalate in Environmental Water Sample Based on Extractive Electrospray Ionization Mass Spectrometry. *Chinese Journal of Analytical Chemistry*, 2018, 46(6): 883-888.
31. Yi Li, **Hua Zhang**, Zongshan Zhao, Yong Tian*, Kun Liu, Feifan Jie, Liang Zhu, Huanwen Chen*, Mass spectral chemical fingerprints reveal the molecular dependence of exhaust particulate matters on engine speeds. *Journal of Environmental Sciences*, 2018, 67: 287-293.
32. Wei Kou, **Hua Zhang**, Aisha Bibi, Mufang Ke, Jing Han, Jianliang Xiong, Rui Su*, Dapeng Liang*, Fast quantification of fluoroquinolones in environmental water samples using molecularly imprinted polymers coupled with internal extractive electrospray ionization mass spectrometry. *RSC advances*, 2018, 8(31): 17293-17299.
33. Xinchen Wang, Meiling Yang, Zhiyuan Wang, **Hua Zhang**, Guofeng Wang, Min Deng, Huanwen Chen*, Liping Luo*, Differentiation using microwave plasma torch desorption mass spectrometry of navel oranges cultivated in neighboring habitats. *Journal of Agricultural and Food Chemistry*, 2017, 65(11): 2488-2494.
34. Haiyan Lu, **Hua Zhang**, Tenggao Zhu, Yipo Xiao, Shaoxian Xie, Haiwei Gu, Meng Cui, Liping Luo*, Metabolic effects of clenbuterol and salbutamol on pork meat studied using internal extractive electrospray ionization mass spectrometry. *Scientific Reports*, 2017, 7, 5136.
35. Haiyan Lu, **Hua Zhang**, Yipo Xiao, Yi Li, Haiwei Gu, Huanwen Chen*. Direct Mass Spectrometry Techniques and Their Applications in Tissue Samples Analysis. *Journal of Instrumental Analysis*, 2017, 36(2): 152-160.
36. Mufang Ke, Jing Han, Tenggao Zhu, Wenjie Liu, **Hua Zhang**, Wei Kou, Dapeng Liang*, Direct and rapid analysis of avocado using internal extractive electrospray ionization mass spectrometry. *Chemical Journal of Chinese Universities*, 2017, 38(5): 738-742.
37. Haiyan Lu, **Hua Zhang**, Wei Zhou, Huanwen Chen*, Rapid Detection of Clenbuterol and Procaterol in Meat Samples Using Internal Extractive Electrospray Ionization Mass Spectrometry. *Modern Food Sci. Technol.*, 2016, 32: 298-303.

38. Haiyan Lu, **Hua Zhang**, Xiaoming Peng, Huanwen Chen*, Rapid analysis of chemical composition in asparagus using internal extractive electrospray ionization mass spectrometry. *Chinese Journal of Applied Chemistry*, 2016, 33(4): 481-488.
39. Haiyan Lu, **Hua Zhang**, Peng Zhou, Meiling Yang, Tao Zhong, Guocan Yao, Huanwen Chen*, Direct analysis of navel orange using internal extractive electrospray ionization mass spectrometry. *Chemical Journal of Chinese Universities*, 2015, 36(10): 1912-1918.
40. Chen HuanWen*, **Hua Zhang**, Wang Haidong, Huang Keke, Yuan Long, The molecular view of energy and charge transfer among the ambient molecules. *Scientia Sinica Chimica*, 2014, 44(5): 789-794.

Presentation

1. The 68th ASMS Conference, Houston, TX, May 31-June 4, 2020 (Poster presentation)
2. The 8th International Symposium on Bioanalysis, Biomedical Engineering and Nanotechnology, Changsha, China, May 25-27, 2019. (Oral presentation)
3. The 4th Chinese Mass Spectrometry Conference by the Chinese Chemical Society, Guangzhou, China, November 23-26, 2018. (Oral presentation)
4. The 65th ASMS Conference on Mass Spectrometry and Allied Topics, Indianapolis, IN, June 3-8, 2017, (Poster presentation)
5. The 2nd National Mass Spectrometry Analytical Symposium of Chinese Chemical Society, Hangzhou, China, October 16-19, 2015 (Oral presentation)
6. The 5th Asia Oceania Mass Spectrometry Conference (AOMSC), Beijing, China, July 15-19, 2014. (Oral presentation)

Affiliations

Member of the American Society for Mass Spectrometry