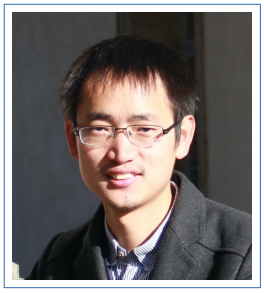
Dr. Zhipeng Huang · Lotharstraße 1, 47057 Duisburg, Germany
Phone: +49 (0)203 379-4694 · E-Mail: zhipeng.huang@uni-due.de

Personal Information



Name	Zhipeng Huang
Place of Birth	Hubei, China
Current Position	Postdoc Research Associate
Office Address	MG463, Building MG Experimental Physics, Faculty of Physics University of Duisburg-Essen Lotharstraße 1, 47057 Duisburg, Germany
Website	https://zhipeng-huang.netlify.app

Education

2014-2019 **PhD** at the Center for Free-Electron Laser Science (CFEL), Deutsches Elektronen-Synchrotron (DESY) and University of Hamburg, Germany

- Research direction: *Photon Science*
- Dissertation title: *Development and Characterization of a Laser-Induced Desorption Source for FEL Experiments*
- Supervisor: *Prof. Dr. Jochen Küpper and Prof. Dr. Henry N. Chapman*
- Member: PIER Helmholtz Graduate School (PHGS), Hamburg, Germany

2013-2014 **Research Graduate Student** at the Colorado State University, USA

- Project: *Upgrade the Light-beam induced current system to characterize the uniformity of local photovoltaic performance of thin-film solar cells*
- Supervisor: *Prof. Dr. James R. Sites*

2011-2013 **Bachelors-PhD Progression** at the Shanghai Center for Photovoltaic, Chinese Academy of Science, China

- Research direction: *Thin-film solar cell*
- Supervisor: *Prof. Dr. Junhao Chu (Academician of the Chinese Academy of Sciences)*
- GPA: 3.5/4 (Solid State Theory: 98/100, Modern Semiconductor Device Physics: 94/100, Thin Films Technology and Physics: 93.2/100, Semiconductor Optoelectronics: 91/100, Photoelectronic Device: 95/100, Micro-Nano-Optical-Electro-Mechanical System and Analysis: 91/100)

2008-2009 **Second University Learning Experience** at the Beijing Institute of Technology, China

- Major: *Physics*
- Supervisor: *Prof. Dr. Qing-Fan Shi*
- GPA: 3.5/4 (Probability and Mathematical Statistics: 91/100, Optics: 91.2/100, Linear Algebra: 96/100, Electromagnetics: 92/100, Mechanics: 97/100, Microcomputer Control Technology: 97/100)

2007-2011 **Bachelor of Science** at the Shandong University, China

- Major: *Physics*
- Supervisor: *Prof. Dr. Shishen Yan*
- GPA: 3.5/4 (Quantum Mechanics: 94/100, Thermodynamics and Statistical Physics: 99/100, Electrodynamics: 92/100, Electromagnetics: 92/100, Mechanics: 97/100, Piezoelectric and Ferroelectric Physics: 91/100, Microcomputer Control Technology: 97/100, Advanced Mathematics: 90/100)

Dr. Zhipeng Huang · Lotharstraße 1, 47057 Duisburg, Germany
Phone: +49 (0)203 379-4694 · E-Mail: zhipeng.huang@uni-due.de

Research Experience

Since 07.2020 **Postdoc:** Faculty of Physics, University of Duisburg-Essen, Duisburg, Germany

- Work in Prof. Dr. Kramer Campen's group focus on developing ultra-high vacuum system for integrating LEED/AES, thermal desorption spectroscopy, time-resolved sum-frequency generation spectroscopy to study (ultrafast) chemical physics process at the solid-gas/solid-liquid/liquid-gas interfaces.
- Developed a UHV system which contains LEED/AES, thermal desorption spectroscopy, and time-resolved sum-frequency generation spectroscopy, etc.
- Built the pump-probe femtosecond laser optical paths for the SFG experiments.
- Developed data analysis scripts to analyze SFG experimental results with Matlab and Julia.

2018-2020 **Postdoc:** Center for Free-Electron Laser Science CFEL, Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany

- Worked in Prof. Dr. Dwayne Miller's group on ultrafast electron diffraction (UED) to study photon-induced reaction dynamics of isolated molecules and photon-induced structural dynamics of solid-state samples.
- Coupled a desorption by impulsive vibrational excitation (DIVE) molecular source with a femtosecond electron gun to study the structural dynamics of large biomolecules.
- Constructed and commissioned the gas-phase/solid-phase ultrafast electron gun
- Built the pump-probe femtosecond laser optical paths for the UED experiments.
- Developed data analysis scripts for analyzing UED experimental results with Matlab and Python.

2014-2019 **Fellow of Joachim Herz Foundation and Graduate Research Assistant:** Center for Free-Electron Laser Science CFEL, Deutsches-Elektronen-Synchtrotron DESY, Hamburg, Germany

- Developed a laser-induced acoustic desorption (LIAD) source to bring large thermally labile and non-volatile biomolecules into gas-phase. A gas-dynamic virtual nozzle aerosol spraying method was developed to deposit uniform biosample layers for the LIAD setup. The developed biomolecule source can be used for further experiments, such as X-ray or electron diffraction imaging, matter-wave interferometry, or ultrafast charge migration and energy transfer reactions.
- Coupled the biomolecule source with a time-of-flight mass spectrometer (TOF-MS) and characterized the source with strong-field ionization (SFI) by Ti:Sapphire femtosecond laser.
- Studied the desorption mechanism and biomolecule ionization and dissociation process under strong laser field.
- Participated PETRA P11 beamtime for biomolecule coherent diffraction imaging with the tape-drive sample delivery setup.

2013-2014 **Graduate Research Assistant:** Colorado State University, USA

- Investigated the efficiency loss mechanism of thin-film solar cells and upgraded the Colorado State University (CSU) Light-Beam Induced Current (LBIC) system to characterize the uniformity of local photovoltaic performance of thin-film solar cells.

2011-2013 **Graduate Research Assistant:** Shanghai Center for photovoltaic, Chinese Academy of Science, China

- Acquired 9.3% efficient CdTe thin-film solar modules with an area of 30×30 cm^2 and built the current-voltage, capacitance-voltage and voltage dependent quantum efficiency test stations to characterize the large area thin-film solar cells.

2010-2011 **Undergraduate Research Assistant:** Shandong University, China

- Awarded the science and technology innovation funding for university students to study the theoretical method to realize quantum coding and quantum logic gates under the supervision of Prof. Dr. Yujun Zhen.

2009-2010 **Undergraduate Research Assistant:** Shandong University, China

- Awarded the science and technology innovation funding for university students to investigate the coupling between the ferromagnetic and ferroelectric domain in $BiFeO_3$ under the supervision of Prof. Dr. Guolei Liu.

Honor & Awards

03.2017 WE Heraeus Communication travel grant

10.2016 Best poster prize, PIER Graduate Week 2016

10.2015 Best poster prize, PIER Graduate Week 2015

11.2013 Doctoral Fellowship of the Joachim Herz Foundation

10.2010 First Class Award in Science and Technology Innovation Competition of Shandong Province

Skills and expertise

Python, Julia, Autodesk AutoCAD, NI LabView, C/C++, MathWorks MATLAB, LaTeX, Git, Microsoft offices, Photoshops, etc.

Instrument Development, Ultrafast Laser Techniques, Data Acquisition Software Development, Electronic Device Design, etc.

Languages

Chinese Mother tongue

English Fluent

German Basic

Additional information

11.2017 Volunteer for DESY open day 2017

Since 10.2017 Committee member of the Society of Chinese Physicists in Germany

Since 2016 Member of the German Physical Society

07.2015 Volunteer for organizing Femto 12 conference at Hamburg

11.2015 Volunteer for DESY open day 2015

2014-2016 DESY DoIt PhD Representative

05.2014 Volunteer for organizing Bunsen-Tagung conference at Hamburg

List of Publications

14. **Z. Huang**, M. Bridger, O. A. Naranjo-Montoya, A. Tarasevitch, U. Bovensiepen, Y. Tong and R. Kramer Campen, "A femtosecond resolved view of vibrationally assisted electron transfer across the metal/aqueous interface", *In preparation*, 2022
13. **Z. Huang**, M. Kayanattil, S. A. Hayes, S. W. Epp, and R. J. D. Miller, "A picosecond infrared laser driven molecular beam for gas-phase and liquid ultrafast electron diffraction experiments", *Manuscript has finished*, 2022
12. **Z. Huang**, M. Kayanattil, S. W. Epp, and R. J. D. Miller, "Time-resolved Imaging of Picosecond Infrared Laser-driven Molecular Plumes Under Vacuum", *Manuscript has finished*, 2022
11. **Z. Huang**, D. A. Horke, and J. Küpper, "Laser-induced acoustic desorption of thermally stable and unstable biomolecules", *Submitted*, 2020, arXiv:1811.05925 [physics]
10. **Z. Huang**, T. Ossenbrüggen, I. Rubinsky, M. Schust, D. Horke, and J. Küpper, "Development and characterization of a laser-induced acoustic desorption source", *Analytical Chemistry*, 2018, 90(6): 3920-3927
9. **Z. Huang**, S. Zhao, L. Sun, P. Sun, C. Zhang, Y. Wu, H. Cao, Z. Hu, S. Wang, P. Yang, and J. Chu, "Voltage dependent quantum efficiency measurement in property study of thin film solar cells", *Journal of Infrared and Millimeter Waves*, 2014, 33 (4): 395-399
8. J. Ge, J. Jiang, P. Yang, C. Peng, **Z. Huang**, S. Zuo, L. Yang, J. Chu, "A 5.5% efficient co-electrodeposited ZnO/CdS/Cu_2ZnSnS_4/Mo thin film solar cell", *Solar Energy Materials and Solar Cells*, 2014, 125: 20-26
7. L. Peng, H. Deng, J. Tian, Q. Ren, C. Peng, **Z. Huang**, P. Yang, J. Chu, "Influence of Co doping on structural, optical and magnetic properties of $BiFeO_3$ films deposited on quartz substrates by sol-gel method", *Applied Surface Science*, 2013, 268: 146-150
6. S. Zhao, **Z. Huang**, L. Sun, P. Sun, C. Zhang, Y. Wu, H. Cao, Z. Huang, S. Wang, and J. Chu, "Numerical analysis of the non-ideal current-voltage characteristics of solar cell", *Journal of Infrared and Millimeter Waves*, 2013, 32(5): 389-393
5. S. Zhao, **Z. Huang**, L. Sun, P. Sun, C. Zhang, Y. Wu, H. Cao, G. Hu, S. Wang, and J. Chu, "A detailed study of the effect of Schottky barrier on the dark current density-voltage characteristics of CdS/CdTe solar cells", *Acta Physica Sinica*, 2013, 62(16): 168801
4. S. Zhao, **Z. Huang**, L. Sun, P. Sun, C. Zhang, Y. Wu, H. Cao, G. Hu, S. Wang, and J. Chu, "Analysis of electrical property parameters of CdS/CdTe solar cells fabricated by close space-sublimation", *Acta Physica Sinica*, 2013, 62(18): 188801
3. Y. Lyu, **Z. Huang**, and S. Jia, "Intelligent audio recognition system based on Labview", *Science and Education Tribune*, 2010, 48(4): 45-49
2. Y. Zhang, **Z. Huang**, J. Sun and Q. Shi, "Cognition and Application of Granular Matter in Ancient China", *Journal of Beijing Institute of Technology (Social Sciences Edition)*, 2010, 12(1): 140-144
1. Y. Lyu, and **Z. Huang**, "The application of MATLAB in physics", *Journal of Shandong University (Natural Science)*, 2009, 44(s2): 20-24