

Zhiping WANG

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Education

Master of Science, University of Basel

Biozentrum

Basel, Switzerland

Sep. 2024 – Jan. 2026 (expected)

Major: Master of Science in Physics of Life (fellowship)

Bachelor of Science in Physics, Lanzhou University (Project 985 in China)

Lanzhou, China

One of China's top 10 science universities

Sep. 2020 – Jul. 2024

Major: Physics (magnetic track) in National Training Base for Research and Teaching Talents in Basic Science Disciplines

Ranking: 4/20 (20 Selected from 52) **GPA:** 85.25/100

Major courses: Fourier optics(89), Computational Physics (100), Methods of Mathematical Physics II (99), Opto-electronic Technology and Applications(94), AI and Big Data(97), Theoretical Mechanics, Statistical Physics, Electrodynamics, Quantum Mechanics, Ferro Magnetism, Magnetic Materials and Measurements, Linear Algebra.

Honors and Awards

Biozentrum Fellowship for Master's Study in Physics of Life

Jun. 2024

Excellent Bachelor's Thesis

Jun. 2024

Outstanding Student Scholarship

Sep. 2023 and Sep. 2022

China Undergraduate Physics Tournament(Northwest Region)

Second Prize

Jul. 2022

China Undergraduate Physics Tournament(Northwest Region)

First Prize

Jun. 2021

Publication

[1] Zhiping Wang, Tianci Feng, and An Pan. **Fusion-Based Enhancement of Multi-Exposure Fourier Ptychographic microscopy.**

* The project's result can be found at the [project link](#).

– Submitted to the journal **Science China Physics, Mechanics & Astronomy**.

[2] Fannuo Xu[†], Zhiping Wang[†], Zipei Wu, Houyou Lai, Yizheng Liao, and An Pan. **Slicing-free, wide-field quantitative phase imaging via feature-domain Fourier Ptychographic microscopy.**

– Submitted to the journal *Optics Letters* (Manuscript ID531347) and under peer review.

[3] Tianci Feng, Aiye Wang, Zhiping Wang, Yizheng Liao, and An Pan. **A Linear-Space-Variant Model for Fourier Ptychographic Microscopy.**

– Proposed linear space-variant FPM model, which better matches the raw data to reduce global artifacts.

– **Accepted** and produced by **Optics Letters** in [Link](#). (DOI:10.1364/OL.522745)

[4] Fannuo Xu, Zipei Wu, Chao Tan, Yizheng Liao, Zhiping Wang, Keru Chen, and An Pan. **Ten Years On: A Review of Fourier Ptychographic Microscopy.**

– **Accepted** by *Cells* on February 8, 2024, accessible via the following [link](#).(DOI:10.3390/cells13040324)

[.] Zhiping Wang. **Performance of Coherent Ising Machine on Weighted NP-hard Problem.**

* The project's code and result can be found at the [GitHub project link](#).

– Preprint

[.] Zhiping Wang, **Bachelor's Thesis:** Exploring Advancements in Slicing-free Fourier Ptychographic Microscopy.

* Instructor: Dr. Hao Jia (Lanzhou University and KAUST) and Dr. An Pan (Chinese Academy of Sciences)

– Summarized some of my work on Fourier Ptychographic Microscopy.

– Achieved an **excellent** rating for my thesis through **oral defense**.

Research/Projects Experience

Research on High-effective Fourier Ptychographic

Aug 2023–present

Research Internship, Supervisor: Dr. An Pan, Pioneering Interdiscipline Center¹ of Chinese Academy of Sciences

- * The project's result can be found at the [GitHub project link1](#) and [GitHub project link2](#).
- Studied articles related to the principles of Fourier Ptychographic Microscopy and actively participated in experiments to gain insights into the details.
- Discovered that block stitching is a cause of many issues in the field of FPM. Through MATLAB simulations and using Arduino to control the LED array for illumination modulation, progressively expanded the field of view in single imaging (0.2mm-1mm-3.3mm) using an improved collaborative algorithm.
- Noticed some deficiencies in the algorithm. By drawing on the concept of image fusion, successfully utilized existing multi-exposure images for innovative nonlinear stitching, significantly improving the imaging quality.

Exploring the Performance of Coherent Ising Machine in weighted NP-Hard Problems

Dec 2022–Aug 2023

Independent Study, Advisor: Jie Zhu, School of ECE, Purdue University

- * The Project's code and details can be viewed at the [GitHub project link](#).
- Replicated prior research using an Optical Parametric Oscillators (OPO)-based coherent Ising machine for numerical simulations, utilizing theoretical equations, and applying the Runge-Kutta method to solve differential equations in Python.
- Utilized coherent Ising machine to address number partitioning problems and MAX-CUT in unweighted graphs, for the MAX-CUT problem, the success possibility of the Ising machine approach was higher.
- Applied the MaxCut problem to weighted graphs and found similar trends, suggesting that the success possibility might be associated with the weights.

Reproduction of Reverse Design of Nano-Optical Structures By Neural Networks

Apr 2022–Mar 2023

Research Assistant, Advisor: Dr. Hao Jia, Lanzhou University & KAUST

- Carried out literature research on the reverse design methods for optoelectronics devices and their applications.
- Created an optical system employing a tandem architecture that combines forward modeling and inverse design based on the work of Yu Zongfu's team.
- Coded in Python using TensorFlow to capture the trends mentioned in the paper using a small sample dataset.

Here are some representative (not all) research projects. For more information, please visit my [personal website](#).

Skills

Programming:	Proficient in C/C++, MATLAB, Mathematica, Python (TensorFlow, OpenCV, etc.), \LaTeX /Tex
Software:	Familiar with Comsol, SolidWorks, Zemax, PixInsight; Proficient in Adobe Illustrator, Photoshop
Computing Skills:	Experienced in supercomputing environments for high-performance computing tasks Competent in Linux for system administration and scripting Familiar with CUDA for GPU-accelerated computing

Teaching Experience

School of Physical Science and Technology, Lanzhou University

Lanzhou, China

Teaching Assistant for the Computational Physics Class

September 2021 – January 2022

- Reviewed and graded student assignments, provided constructive feedback to students, and helped teachers with ongoing evaluation.
- Assisted students with course material, answered questions during regular office hours I held or in the class, and conducted supplemental study sessions to enhance students' understanding of complex topics.
- Collaborated with the course instructor to develop educational materials, including presentations and assignments, to improve the overall learning experience.

¹One of the interdisciplinary research centers within the **national laboratories**, among China's **top four** optical research bases.