Xinzhe Zhang

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Office 417, Teaching Building 5, Nankai University
94 Weijin Road, Nankai District, Tianjin, P.R.China

Education

- **M.S.** **Nankai University**, Tianjin, China — Sept. 2023 - Jun. 2025 (expected)
  Optics, GPA:93.45/100, adviser: *Jing Chen*
- **B.S.** **Nankai University**, Tianjin, China — Sept. 2019 - Jun. 2023
  Physics, GPA:88.27/100

Research Experience

- **Prof. Chen's Group at Nankai University** — *Research Assistant*
  Tianjin, China — Jul. 2022 - present
  - Worked on **Simulation of PT-symmetric Bragg Gratings**. Studied the superluminal effects of transmission and non-reciprocity of reflectivity in this structure.[4][5]
  - Worked on **Simulation of Coupled Loss-free Waveguides** Made of Positive-index Materials and Negative-index Materials. Studied the slow light effect in this structure and extended this structure to multilayer coupled waveguides.[2][3]
  - Worked on **Simulation of Parity-Time Symmetric Waveguides**. Refined the definition of the Poynting vector in non-Hermitian systems by analyzing the dispersion relation.[1]

Research Interests

- Optics and Photonics, Nonlinear Optics, Integrated Photonics

Publications

[1] **ZHANG XZ**, LUO RZ, CHEN J. Revisit the Poynting vector in PT-symmetric coupled waveguides [J]. OPTICS EXPRESS, 2022, 30(21): 38753-63.[DOI] [PDF]

[2] **ZHANG XZ**, WU LT, LUO RZ, et al. Higher-order exceptional points using lossfree negative-index materials [J]. PHYSICA SCRIPTA, 2023, 98(9): 095511.[DOI] [PDF]

[3] WU LT, **ZHANG XZ**, LUO RZ, et al. Non-Hermitian guided modes and exceptional points using loss-free negative-index materials [J]. OPTICS EXPRESS, 2023, 31(9): 14109-18.[DOI] [PDF]

[4] WU LT, **ZHANG XZ**, MING KANG, et al. Broken phase of parity-time symmetry enables efficient superluminal pulse transmission [J]. OPTICS EXPRESS, 2024, 32(24): 42489-99.[DOI] [PDF]

[5] WU LT, **ZHANG XZ**, GUO TJ, et al. Superluminality in parity-time symmetric Bragg gratings [J]. PHYSICA SCRIPTA, 2024, 99(8): 085544.[DOI] [PDF]

Skills

- **Programming Languages:** MATLAB, Python(numpy, pandas), LaTeX, HTML
- **Softwares:** COMSOL, Git

Honors and Awards

- **National Scholarship** *2023*
  Top 1/130+, the highest scholarship for Chinese graduates granted by the Ministry of Education of China
- **National Encouragement scholarship** *2022*
  Granted by Nankai University
- **National Encouragement scholarship** *2021*
  Granted by Nankai University

LANGUAGES

TOEFL: 95 (R: 26 | L: 23 | **S: 23** | W: 23)
GRE: 330 (V: 161 | Q: 169)

REFERENCES

1. **Jing Chen**
   Professor, Department of Physics, Nankai University
   Email: jchen4@nankai.edu.cn | Phone: +86 13132161393
   Relationship: supervisor

2. **Zhenpeng Hu**
   Professor, Department of Physics, Nankai University
   Email: zphu@nankai.edu.cn | Phone: +86 15022625376
   Relationship: undergraduate mentor, course instructor

3. **Ming Kang**
   Professor, College of Physics and Materials Science, Tianjin Normal University
   Email: mingkang@tjnu.edu.cn | Phone: +86 15222899640
   Relationship: collaborator