Jiayu Fan

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EDUCATION

- **Guangdong University of Education** ***September 2014- June 2018***
  - Bachelor of Science in Physics
  - Thesis Title: "Research on linear electro-optic effect in KDP crystal"
- **Shenzhen University** ***September 2019- June 2022***
  - Master of Science in Optic
  - Thesis Title: "Research on terahertz wave modulation base on metallic waveguide arrays"

RESEARCH EXPERIENCE

- **Simultaneous and independent control of phase and polarization in terahertz band for functional integration of multiple devices (published)**
  - Research project: Proposed a metallic waveguide arrays (MWAs) capable of integrating multiple functions based on rectangular metallic waveguide. And multifunctional devices are designed based on the MWAs. It can maintain its high efficiency while realizing the integration of its functions.
  - Main Responsibility:
    - Analyze the influence of the dimension of the metallic waveguide on the phase delay. Since the phase delay of the electromagnetic wave in waveguide can be predicted by the analytical, the error and the cause of the error between the analytical solution and the simulation result are analyzed.
    - Design the MWAs for different functional devices. Then complete the simulation an experiment of each MWAs. And finish the writing.
- **Simultaneous control of amplitude and phase in terahertz band (writing)**
  - Research project:
  - Main Responsibility：
    - Analyze the influence of the rotation angle of metallic waveguide on the amplitude.
    - Design the hologram and the phase distribution is obtain by using GS algorithm based on Fresnel diffraction.
    - Design the MWAs. Then complete the simulation an experiment of each MWAs.

❖ **Terahertz antennas based on MWAs**

- Research project: Proposed the Metallic Waveguide Transmitarray Antennas (MWTAs) to generate circularly polarized multi-beam with high gain in terahertz waves and dual-band terahertz waves.
- Main Responsibility：Participated in the design and experimentation of MWTAs.

PUBLICATION

❖ **Journal Paper**

- **Jiayu Fan**, Lei Zhang, Zhiyong Wu, Jiaxuan Liang, Tingyin Ning, Min Zhang, Hong Su, Huawei Liang*. Simultaneous and independent control of phase and polarization in terahertz band for functional integration of multiple devices. *Optics & Laser Technology, 151, 108064 (2022)* (JCR Q1, IF = 4.939)
- Jiaxuan Liang, Tingyin Ning, **Jiayu Fan**, Zhiyong Wu, Min Zhang, Hong Su, Yujia Zeng, Huawei Liang*. Metallic waveguide transmitarray antennas for generating multibeams with high gain and optional polarized states in the F-band, *Journal of Lightwave Technology, 39, 22(7210-7216) (2021)* (JCR Q1, IF = 4.439)
- Jiaxuan Liang, Tingyin Ning, **Jiayu Fan**, Min Zhang, Hong Su, Yujia Zeng, Huawei Liang*. Metallic waveguide transmitarrays for dual-band multibeam terahertz antennas. *Applied Physics Letters, 119, 253501(2021)* (JCR Q2, IF = 3.971)

RESEARCH INTERESTS

- Holographic imaging by metasurface
- Biosensing based on metasurface
- Multifunctional metasurface

PROFESSIONAL SKILL

❖ Physics

- Proficient in literature review and normal laboratory techniques
- Basic capability of designing metasurface

❖ Software

- Specialized software: COMSOL Multiphysics, Origin, MATLAB, AutoCAD, FDTD etc,

EXTRACURRICULAR ACTIVITIES AND AWARDS

❖ Second-class scholarship Shenzhen University, *2019*

#The appendix below is the article that has been published.