

Yifan Fan — Academic CV

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RESEARCH INTEREST

Avalanche Photodiodes (APDs), High-speed Optoelectronics Devices
Photonic Devices, Integrated Photonics, their Applications in Sensing and Computing

EDUCATION

Shanghaitech University

M.S. in Electronic Science and Technology

Supervisor: Prof. Baile Chen

Sep. 2023 - Jun. 2026 (expected)

Shanghaitech University

B.S. in Physics

Sep. 2019 - Jun. 2023

AWARDS & HONORS

- **Second Academic Scholarship**, Shanghaitech University, 2025
- **Second Academic Scholarship**, Shanghaitech University, 2024

RESEARCH EXPERIENCE

High-Speed InGaP/AlGaAs Visible Avalanche Photodiodes

2024 - 2025

- Conducted the fabrication process, which includes photolithography, etching, metal deposition, annealing and passivation.
- Test device performance, which includes dark current, multiplication gain, responsivity, quantum efficiency, bandwidth, excess noise and data rate.

Single-pixel p-graded-n junction spectrometers for Near-UV spectral range

2024

- Designed a new structure to broaden the spectral coverage into the near-UV range.
- Measured electrical and optical characteristics for spectrum construction.

SKILLS

○ Fabrication

Proficient in fabrication process, which includes photolithography, E-beam metal evaporation, PECVD oxide deposition, reactive ion etching (RIE), etc.

○ Characterization

Proficient in photodetector and avalanche photodiode characterization, which includes dark current, multiplication gain, responsivity, quantum efficiency, bandwidth, excess noise, etc.
Familiar with optical and electrical instruments, which includes semiconductor analyzer, lock-in amplifier, optical spectrum analyzer (OSA), wafer prober, etc.

○ Softwares

Silvaco TCAD, Klayout, Matlab, Python, Origin, etc

PUBLICATIONS

High-Speed InGaP/AlGaAs Avalanche Photodiodes for LED-Based Visible Light Communication

Y. Fan et al., *IEEE Transactions on Electron Devices*, doi: 10.1109/TED.2025.3559492

OTHER EXPERIENCE

○ Service

Introduction to World Civilizations Course

Teaching Assistant

Sep. 2024 - Jan. 2025

Entrepreneurial Management Course

Teaching Assistant

Feb. 2024 - Jun. 2024

Fundamental Semiconductor Device Physics Course

Teaching Assistant

Sep. 2023 - Jan. 2024

Institute of Mathematical Science

Management Assistant

Sep. 2020 - May. 2021

○ Leadership

Shanghaitech Physics Club & Society of Physics Students

President

Sep. 2021 - Jun. 2023

SELECTED COURSES

○ Graduate

Introduction to Quantum Computing (A), Semiconductor Device Physics (A-), Deep Learning (A-), Microwave Engineering (A-)

○ Undergraduate

Quantum Mechanics (A+), Advanced Thermodynamics and Statistical Physics (A), Methods of Mathematical Physics (A), Fundamental Semiconductor Device Physics (A-)