Zhangqi Dang

Integrated photonic devices & astronomical instrumentation

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Selected projects

Miniature astronomical spectrometer

Built and calibrated a fiber-coupled spectrometer around a waveguide spectral lens (WSL). Led the instrument's first astronomical observations at Lijiang Observatory, where the team recorded first-light spectra.

Optical switching and wavelength routing

Helped design and test 1×8 and 1×16 polymer switches. Co-developed the thermo-optic lens concept for the team's two-stage 1×576 switch. C-band insertion loss was below 7.8 dB at all 20 representative ports tested. Also studied a two-port C/L-band wavelength multiplexing switch.

Subpixel calibration of scientific CMOS detectors

Built and calibrated a small-spot scanning setup and wrote the acquisition software. Used forward modeling and error analysis to study how stellar image motion across a nonuniform pixel affects photometry.

Appointments & education

Feb 2025 - present	**Shanghai Astronomical Observatory, CAS** · Postdoctoral researcher
2024 - 2025	**Shanghai Astronomical Observatory, CAS** · Visiting scholar
2020 - 2024	**Zhejiang University** · PhD in Electronic Science and Technology (joint training with Westlake University)
2019 - 2020	**National University of Singapore** · Master's degree in Electronic Science and Technology
2015 - 2019	**University of Electronic Science and Technology of China** · Bachelor's degree in Applied Physics

Selected publications

Large-scale optical switches by thermo-optic waveguide lens
PhotoniX · 2024 · Co-first author

A Simple Nonlinear Classifier Using a Multimode Optical Chip
Advanced Photonics Research · 2024 · Co-first author, listed first

C/L-Band 2-Port Broadband Wavelength Multiplexing Switch Using Polymer Waveguides
Journal of Lightwave Technology · 2023 · First author

Selected Chinese invention patents

First-listed inventor on both grants

CN114966991B	On-chip wavelength-selective switch and switching network
CN114660716B	Optical computing chip and control system based on multimode interference

Methods & tools

Lumerical FDTD and MODE for waveguide simulation, IPKISS for mask layout, Python for automated acquisition and MATLAB for data analysis.