# Hongyi Yang

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## Education

Sep 2023 - Present **Zhejiang University** Hangzhou, China
B.Eng. in Optoelectronic Information Science and Engineering
*Chu Kochen Honors College (Mixed Class, Honors Program)*
**GPA:** 4.60 / 5.00
**Ranking:** 4/162 (CKC Honors College), 4/102 (School of Optoelectronics)

## Research Interests

Quantum Nanophotonics, Computational Physics (NEGF/DFT), Quantum Light Sources, Optoelectronic Devices.

## Research Experience

**Quantum Light Sources based on Gold Nanowires** Apr 2025 - Present
*Advisor: Prof. Haoliang Qian*
- **Computational Modeling:** Constructed a device model consisting of 3D electrodes and 1D gold nanowires using **Python** and the **NEGF** (Non-Equilibrium Green's Function) formalism.
- **Tunneling Analysis:** Investigated the Inelastic Electron Tunneling Spectroscopy (IETS) process based on the Self-Consistent Born Approximation (**SCBA**).
- **Quantum Characterization:** Validated single-electron transport characteristics by calculating the **Fano factor**, demonstrating the mechanism of resonance tunneling models for quantum light emission.

**Modular Fluorescence Microscope Design** Sep 2024 - Sep 2025
*Advisor: Prof. Yubing Han*
- Designed and manually assembled a fluorescence microscope structure using modular blocks (Lego framework) to achieve low-cost customization.
- Conducted optical path simulations and optimization using **Zemax** to ensure imaging quality and fluorescence efficiency.

**Perovskite Optoelectronic Device Fabrication** Sep 2023 - Jun 2024
*Advisor: Prof. Dawei Di*
- Mastered the fabrication process of perovskite optoelectronic devices, including spin-coating and encapsulation techniques.
- Designed and built an optical measurement setup to test the luminescence efficiency of the fabricated devices.

## Honors & Awards

**Scholarships&Awards**

2023-2024 **National Scholarship** (Top 0.2%, Highest Honor for Undergraduates in China)
2023-2024 **First-Class Scholarship** of Zhejiang University
2024-2025 **OPPO "Benfen" Scholarship** (Awarded to only 8 students per year)
2025.10 **Top Ten Undergraduates**, School of Optoelectronics
2023-2024 Excellent Student Title

**Competitions**

2024 **First Prize**, Zhejiang Provincial College Physics Competition
2022 **First Prize**, Hunan Provincial High School Physics Olympiad

**Athletics**

2023-2025 3rd Place (Long Jump) & 5th Place (Triple Jump), ZJU Sports Meeting

## Skills

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|---|---|
| **Programming** | Python, PyTorch, C/C++ |
| **Simulation & Tools** | NEGF (Non-Equilibrium Green's Function), Wannier90, Zemax, SolidWorks, Altium Designer, LaTeX |
| **Languages** | **TOEFL: 103** — R: 27, L: 27, S: 25, W: 24 |