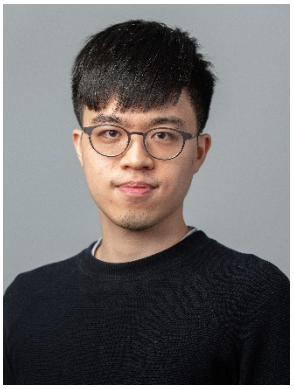
HAO-CHENG, WENG

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EXPERIENCE

- Postdoctoral research scholar, University of Chicago. 2026 – now
- Visiting scholar, University of Sheffield. 2026
- Visiting scholar, University of Cambridge. 2025

EDUCATION

PhD in Physics and Quantum Engineering, University of Bristol. 2022 – 2026

Master of Science in Physics, National Tsing Hua University. 2020 – 2022

Bachelor of Science in Physics, National Tsing Hua University. 2015 – 2019

RESEARCH HIGHLIGHTS

- Multi-NV quantum sensing:
  1. **Hao-Cheng Weng**, John G. Rarity, Krishna C. Balram, and Joe A. Smith, *Photonic-Integrated Quantum Sensor Array for Microscale Magnetic Localisation*, Nature Communications 17, 6185 (2026).
- Microelectronic control of optically active spins:
  1. **Hao-Cheng Weng**, John G. Rarity, Krishna C. Balram, and Joe A. Smith, *Crosstalk-Mitigated Microelectronic Control for Optically Active Spins*, Physical Review Applied 25, 024025 (2026).
  2. **Hao-Cheng Weng**, Krishna C. Balram, and Joe A. Smith, *Crosstalk-Mitigated Microelectronic Control for Optically-Active Spins*, UK patent application No. GB 2404816.7.
- Photonic integration of solid-state emitters:
  1. **Hao-Cheng Weng**, Jorge Monroy-Ruz, Jonathan C. F. Matthews, John G. Rarity, Krishna C. Balram, and Joe A. Smith, *Heterogeneous Integration of Solid-State Quantum Systems with a Foundry Photonics Platform*, ACS Photonics 2023 10 (9), 3302-3309.
  2. Vivekanand Tiwari, Zhaojin Liu, **Hao-Cheng Weng**, Krishna C. Balram, John G. Rarity , Soumen Mandal , Oliver A. Williams, Gavin W. Morley, and Joe A. Smith, *Single photon emission from lithographically-positioned engineered nanodiamonds for cryogenic applications,* arXiv:2508.06424 (2025).
- Quantum information and thermodynamics:
  1. Chung-Yun Hsieh, Benjamin Stratton, **Hao-Cheng Weng**, and Valerio Scarani, *Informational Nonequilibrium Concentration*, Physical Review A 111.5 (2025): 052423.
- Quantum computation with high-dimensional single photons:
  1. **Hao-Cheng Weng** and Chih-Sung Chuu, *Implementation of Shor's algorithm with a single photon in 32 dimensions*, Physical Review Applied 22.3 (2024): 034003. Press coverage.
- Reviving and enhancing quantum correlations of photons:
  1. Yen-An Shih, Wan-Guan Chang, Gelo Noel M. Tabia, **Hao-Cheng Weng**, Tsung-Ying Tsai, Chih-Sung Chuu, Huan-Yu Ku, and Costantino Budroni, *Experimentally enhancing high-dimensional subchannel discrimination via optimal local filtering,* Phys. Rev. Research 7, L032035 (2025).

2. Huan-Yu Ku, **Hao-Cheng Weng**, Yen-An Shih, Po-Chen Kuo, Neill Lambert, Franco Nori, Chih-Sung Chuu, and Yueh-Nan Chen, *Hidden Nonmacrorealism: Reviving the Leggett-Garg Inequality with Stochastic Operations*, Phys. Rev. Research 3, 043083 (2021).

- Temporal quantum correlations on superconducting qubits:
  1. **Hao-Cheng Weng**, Chen-Yeh Wei, Huan-Yu Ku, Shin-Liang Chen, Yueh-Nan Chen, and Chih-Sung Chuu, *Observation of a full hierarchy of temporal quantum correlations with a superconducting qubit*, Physical Review A 111.5 (2025): 052439.

SCHOLARSHIPS AND FELLOWSHIPS

- **2024-2026 Taiwan Ministry of Education Scholarship**: funding PhD study on NV centers for prototyping CMOS compatible quantum processors.
- **2022-2026 University of Bristol Fully Funded PhD Studentship**: awarded for researching large scale spin-photonic integrated circuit for quantum information applications.

PRIZES AND AWARDS

- **2024 M4QN Lab Exchange Award:** funded research visit to the University of Cambridge, link.
- **2024 Bristol Quantum Information Technologies Workshop Best Poster Prize:** Crosstalk-Mitigated Microelectronic Control for Optically-Active Spins.
- **2023 Hon Hai Technology Award:** awarded for pioneer research on heterogeneous integration of solid-state quantum systems with a foundry photonics platform, link.
- **2022 Postgraduates Student Thesis Award, Physical Society of Taiwan:** Hierarchy and Revival of Temporal Quantum Correlations.