

Lin ZHU

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Educational Background

University of Oxford

Oct. 2021 - Aug. 2025

- **Degree Pursued:** Master of Engineering in Material Sciences
- **Core Modules:** Lifecycle, Processing and Engineering, Electronic Properties, Mechanical Properties, Structure and Thermodynamics, Modelling in Materials Science.
- **Research project:** Predicting the Performance and Usefulness of Early Quantum Computers

The Hong Kong University of Science and Technology (Guangzhou) *Aug. 2025 – Present* *PhD Co-Supervision Scheme with QSCGBA (Quantum Science Center of Guangdong-Hong Kong-Macao Greater Bay Area)*

Supervisor: Xin Wang, Shenggen Zheng

- **Research interest:** Quantum Computing, Quantum Hardware, Quantum Information

Project Experience

Predicting the Performance of Error Correction Code in Early Quantum Computers

Supervisor: Simon Benjamin

Sept. 2024 - Present

- Developed expertise in quantum error correction, focusing on Clifford and non-Clifford gates, and implemented simulations using the QuEST emulator and pyQuEST.
- Conducted error correction simulations using pyQuEST and Qiskit on Oxford's ARC facility to assess early quantum computers' capabilities in fault tolerance, focusing on their error mitigation in different error correction code.
- Analyzed and applied methodologies from Keisuke Fujii's research to refine approaches for achieving early quantum fault tolerance.

Electro-Magnetic Field Study on Skin Effect Suppression of Metal/Ferromagnet Superlattice Conductors

Summer exchange programme with Shanghai Jiao Tong University

Supervisor: Tao Hang, Ming Li

Jul. 2024 – Sept. 2024

- Conducted research on the suppression of the skin effect in metal/ferromagnetic superlattice conductors, and investigated the role of thickness ratio, number of electrodeposition layers, and ferromagnet magnetization in dominating skin effect suppression response.
- Addressed practical challenges such as fabrication fluctuations and roughness, making strategies to fabricate nanoscale ferromagnetic layers with high quality, low loss, and intrinsically high magnetization.
- Collaborated with an interdisciplinary team, contributing to the publication of final paper presented at the IEEE International Conference on Integrated Circuits, Technologies and Applications (ICTA) 2024.

Designing a Multi-Energy Scintillator for an X-ray Imaging Application

Supervisor: Enzo Liotti, Andrew Watt

Oct. 2023 - Jan. 2024

- Developed a hybrid X-ray detection system integrating XRT, XRF, and optical imaging, coupled with AI-driven analysis, to accurately classify aluminum alloys and detect critical tramp elements in Zorba scrap
- Designed dual-layer scintillators with advanced materials (LaBr₃ and YAG) to enhance spatial resolution, minimize

- photon scattering, and ensure system durability through hermetic sealing
- Advanced aluminum recycling by improving sorting precision and efficiency, reducing energy use and emissions, and supporting the circular economy in alignment with Net Zero goals

Investigative Analysis of Elemental Tin Allotropes Using CASTEP on Linux

Supervisor: Jonathan Yates, Christopher Patrick

Nov. 2023 - Dec. 2023

- Utilised CASTEP on Linux to model Sn allotropes, focusing on lattice optimization for α -Sn and β -Sn, along with comprehensive bulk modulus analysis.
- Explored electronic properties of Sn allotropes, determining their suitability for electronic applications through detailed state character evaluations.
- Analysed stanene's stability in planar and buckled forms, assessing the effects of strain on its electronic properties to inform material design.

Internship Experience

Mastercard

Consulting Interns

Jul. 2023 - Jul. 2024

- Utilized advanced data analytics tools to evaluate market trends and consumer behavior, contributing to the development of major strategic initiatives aimed at increasing card usage among customers.
- Collaborated with cross-functional teams to analyze market trends, customer preferences, and competitive intelligence, resulting in the identification of potential growth opportunities for Mastercard.

Dewey Education Consultancy Co.

Academic Mentor

Sept. 2022 – Mar. 2024

- Designed and tailored engineering-related curriculum modules, ensuring alignment with current educational standards and the specific needs of students.
- Conducted personalized tutoring sessions for more than 20 students aspiring to study engineering at top universities, resulting in 100% G5 admission.

Publications

- (1) W. Shen, L. Shang, **L. Zhu**, C. Chen, M. Li, Y. Luo, J. Ma, T. Hang. “Electro-Magnetic Field Study on Skin Effect Suppression of Metal/Ferromagnet Superlattice Conductors”. **IEEE International Conference on Integrated Circuits, Technologies and Applications (ICTA)**, 2024, DOI: 10.1109/ICTA64028.2024.10860352

Professional and Language skills

- Advanced in Microsoft Office such as Word, Excel and Powerpoint
- Proficient in Python and Matlab for data analysis and modelling purpose
- Adroit in Linux and photoshop
- Native level in Mandarin and English