Yongxin Lyu

PhD candidate · UNSW

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Education

University of New South Wales — *Sydney, Australia*

Ph.D. in Materials Science and Engineering — *June 2021 - present*

- Supervised by Tom Wu
- Australian Government Research Training Program (RTP) Scholarship
- UNSW Women in Maths and Science Champions Program 2023

The Hong Kong Polytechnic University — *Hong Kong*

M.Phil. in Applied Physics — *Sep 2017 - May 2020*

- Thesis: Lanthanide near-infrared luminescence in layered semiconductor nanosheet hosts
- Supervised by Jianhua Hao
- Theoretical and experiment analysis of 2D materials

B.Sc. in Applied Physics — *Sep 2013 - May 2017*

- 1st class honors, GPA: 3.73/4.0
- Dean's Honours List 2016

Research Interest

I'm a 4th year PhD researcher at the School of Materials Science and Engineering (UNSW) supervised by Prof. Tom Wu. My research focus on high-throughput first-principles calculation and interpretable machine learning and their application to challenging problems in hybrid organic-inorganic interface in perovskite materials.

Publications

Effective piezo-phototronic enhancement of flexible photodetectors based on 2D hybrid perovskite ferroelectric single-crystalline thin-films
Ran Ding, Yongxin Lyu, Zehan Wu, Feng Guo, Weng Fu Io, Sin-Yi Pang, Yuqian Zhao, Jianfeng Mao, Man-Chung Wong, Jianhua Hao
Advanced Materials p. 2101263. 2021

Large-scale growth of few-layer two-dimensional black phosphorus
Zehan Wu, Yongxin Lyu, Yi Zhang, Ran Ding, Beining Zheng, Zhibin Yang, Shu Ping Lau, Xianhui Chen, Jianhua Hao
Nature Materials pp. 1203–1209. 2021

Observation and theoretical analysis of near-infrared luminescence from CVD grown lanthanide Er doped monolayer MoS_2 triangles
Yongxin Lyu, Zehan Wu, Weng Fu Io, Jianhua Hao
Applied Physics Letter p. 153105. 2019

Skills

Simulation Software	Proficiency in VASP, Gaussian. Experience with Quantum Espresso, LAMMPS
Python Programming	Materials science (pymatgen, RDkit). Machine learning (Scikit-learn).
Visualization	seaborn, plotly, Inkscape, ChemDraw, VESTA, Blender.
Miscellaneous	Linux, Shell (Bash), LaTeX, Git.

Awards and Honors

2023	**UNSW Women in Maths and Science Champions Program,** Faculty of Science, UNSW	*Sydney, Australia*
2022	**Third Place,** APAC HPC-AI Competition	*Australia*
2021-2024	**Australia Government Research Training Program (RTP) Scholarship,** Faculty of Science, UNSW	*Sydney, Australia*
2016	**Dean's Honours List,** Faculty of Applied Sciences and Textiles, PolyU	*Hong Kong*

Outreach Activities

Pint of Science Australia — *Sydney, Australia*

Presenter — *May 2023*

- Talk: Fantastic Perovskites and where to find them

Science in the Swamp *Sydney, Australia*

Outreach demonstrator *Aug 2023*

- One day event

UNSW Women in Maths and Science Champions Program Blog *Sydney, Australia*

Blog Writer *2023*

- Blog Link
- Interview women in Science, write blog

Volunteering Experience

Graduate Mentor, Personalised English Language Enhancement (PELE) Program

Faculty of Arts and Social Sciences, University of New South Wales *Jan 2022 - present*

- Assisted students in improving their English language skills by providing support during lectures and tutorials.
- Developed communication and interpersonal skills through collaborative peer mentoring with students from diverse cultural and linguistic backgrounds.
- Received positive feedback from students and faculty for providing valuable support and enhancing the learning experience.
- **Soft Skills:** Leadership, Mentoring, Communication, Teamwork.

Peer Mentor Coordinator, Postgraduate Student Society (PGSOC)

School of Materials Science and Engineering, University of New South Wales *Jan 2024 - present*

- Assist student activities.
- **Soft Skills:** Leadership, Teamwork, Event Planning.

Languages

English Professional proficiency

Mandarin Native proficiency