YUAN-MAU LEE

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Research Interests: Semiconductors, Nanotechnology, Electronics, Photonics, 2D materials, Oxide semiconductor

EDUCATION

Stanford University, California, United States Sep. 2023 – Mar. 2029 (expected)
Doctor of Philosophy (Major: Materials Science and Engineering)

National Tsing Hua University (NTHU), Hsinchu, Taiwan Sep. 2019 – Jun. 2022
Bachelor of Science (Major: Materials Science and Engineering)

- On the basis of academic excellence, I graduated one year early.
- Cumulative GPA: **4.23/4.30** (Converted GPA: **3.98/4.00**)
- Top 2% of the department (Rank: **2/113**)
- Top 1% of the class (Rank: **1/53**)

PROFESSIONAL EXPERIENCES

***Research Assistant,* Bio/Nano Electronic Lab (BNE Lab), NTHU**, Hsinchu, Taiwan Jul. 2022 – Mar. 2023

Topic: Iron Oxide-Based and Manganese Oxide-Based Novel Anode Materials for Lithium-Ion Battery Applications

- Developed innovative surface coatings on metal oxide active materials to improve LIBs' performance.
- Hands-on skills: X-ray crystallography (XRD), Scanning electron microscope (SEM), Cyclic voltammetry (CV), Galvanostatic charge discharge (GCD), and EIS measurements.

***Undergraduate Researcher,* BNE Lab, NTHU**, Hsinchu, Taiwan Nov. 2020 – Jun. 2022

Topic: Manganese Copper Ferrite Thin Films for Visible–Near-Infrared Region Photodetector Applications

- Developed a cost-effective and eco-friendly oxide thin-film photodetector with a wide photodetection range from visible to near-infrared.
- Achieved performances including a high photosensitivity of 163, a high responsivity of 1.26 A/W, and a fast response time of ~7 ms under 800 nm illumination and a low bias voltage of -2 V.
- Studied the mechanism of the peak performance under 800 nm illumination.
- Confirmed the correlation between oxygen-induced defect levels and the key performance of devices.

Topic: Novel P-type Metal Oxide for Thin Film Device Applications

- Studied p-type metal oxide-based thin films for PDs, TFTs, and TCOs applications through thermal deposition or RF-sputtering to explore the viable candidates for next-generation devices with eco-friendly and cost-effective features.
- Hands-on skills: Radio-frequency sputtering system, Furnace, Four-point probe, Hall measurement, UV-Vis, PL spectroscopy, Alpha step, Thermogravimetric analyzer (TGA), and fundamental laboratory equipment.

PUBLICATIONS

- **Lee, Y. M.;** Lu, Y. Y.; Fu, C. T.; Kuo, C. T.; Hou, L. C.; Chuang, Y. H.; Chung, P. H.; Wang, T. H.; Liu, C. I.; Yew, T. R.*, Manganese Copper Ferrite Thin Films for Visible–Near-Infrared Region Photodetector Applications. *Physica Status Solidi (RRL)–Rapid Research Letters* 16.7 (2022): 2200074. ***2021 Impact Factor: 3.277,* Double peer-reviewed journal paper**

- Fu, C. T.; Kuo, C. T.; Chi, C. C.; Hou, L. C.; Liu, C. I.; Chang, S. C.; **Lee, Y. M.;** Chuang, Y. H.; Yew, T. R.*, Photoactive Copper-Doped Zinc Stannate Thin Films for Ultraviolet–Visible Light Photodetector. *Journal of Electronic Materials* 51.9 (2022): 4884-4895. ***2021 Impact Factor: 2.047,* Peer-reviewed journal paper**

TEACHING EXPERIENCES

Teaching Assistant, Appreciation of Art Performing, GE, NTHU, Hsinchu, Taiwan Sep. 2020 – Jan. 2021

- Assisted the instructor in preparing the teaching materials.
- Set up the learning environment for over 80 students.

HONORS & ACHIEVEMENTS

- Second Semester of the Academic year 2021, **Academic Achievement Award**, Top 5% of the class.
- First Semester of the Academic year 2021, **Academic Achievement Award**, Top 5% of the class.
- Second Semester of the Academic year 2020, **Academic Achievement Award**, Top 5% of the class.
- First Semester of the Academic year 2020, **Academic Achievement Award**, Top 5% of the class.

ADDITIONAL SKILLS

- Language: Mandarin Chinese (Native), English (fluent, TOEFL iBT: 104)
- Software: Jade 6, Origin 8.5, XPS 6.5

LEADERSHIP & EXTRACURRICULAR EXPERIENCES

Initiator & Project manager, BNE Lab, MSE, NTHU, Hsinchu, Taiwan Jul. 2022 – Mar. 2023

- Proposed an educational STEM project, an academia-industry collaboration, with my advisor, Prof. Tri-Rung Yew.
- Received **USD$ 120,000** of funding in total from the Ministry of Education (Taiwan) and cooperating companies.
- Led and built an interdisciplinary team of STEM/non-STEM students and two cutting-edge companies.
- Assisted the companies with product development, material analysis, paper research, and staff education courses.
- Introduced the wonder of MSE to STEM/non-STEM students with several lectures and courses.
- Promoted **Women's Participation and Gender Equality** in STEM field.
- Website: https://sites.google.com/view/bnelabnthu/stem-project?pli=1

Vice coordinator, BNE Lab, MSE, NTHU, Hsinchu, Taiwan Sep. 2022 – Nov. 2022

- Coordinated with advisor and whole BNE Lab to propose a 3-year research project about LIBs and metal oxide semiconductor applications and received **USD$ 35,000** of funding from National Science and Technology Council.

Vice coordinator, MSE Camp for High School Students, MSE, NTHU, Hsinchu, Taiwan Jul. 2022

- Coordinated with a team of 79 undergraduates to prepare a 6-day camp for 96 senior high school students.
- Planned and managed the finance and cost estimation of the organization.
- Negotiated with school administration for events space rental and pandemic policy.
- Provided online activities and lectures after being forced to suspend indoor/outdoor activities.
- Website: https://www.facebook.com/2022nthumsecamp

Initiator & Project manager, College of Engineering (CoE), NTHU, Hsinchu, Taiwan Feb. 2022 – May. 2022

- Pioneered the college-launched non-fungible token (NFT) project in Taiwan.
- Built and coordinated with a team of students from several different departments and a local start-up.
- Received **USD$ 4,000** in funding from the dean's office and sold over **400 NFTs**.
- Website: https://eng.site.nthu.edu.tw/p/412-1284-19426.php?Lang=zh-tw

Staff member, The 50th Anniversary Game Design, CoE, NTHU, Hsinchu, Taiwan Feb. 2022 – May. 2022

- Cooperated with an interdisciplinary team, the College of Engineering, Computer Science, and the Department of Arts.
- Made an online educational game to introduce professional knowledge of each department in CoE.
- Website: https://cgv.cs.nthu.edu.tw/COE50/COE50Celebration/

Section leader, Student Council, MSE, NTHU, Hsinchu, Taiwan Jun. 2021 – Jun. 2022

- Collaborated with the whole student association, eighteen juniors, on holding over ten special activities.
- Built a sense of belonging among the department members, faculty, employee, and undergraduates.
- Website: https://www.facebook.com/nthumaterial

Staff member, MSE Camp for High School Students, MSE, NTHU, Hsinchu, Taiwan Jul. 2020, Jul. 2021

- Collaborated with the academic section to prepare lectures, lab tours, and factory tours for juveniles.

Group leader, Orientation Camp for freshmen, MSE, NTHU, Hsinchu, Taiwan Oct. 2020

- Organized and hosted a 3-day camp for over 60 first-year students with multiple activities.
- Welcomed the first-year students of the Department of Materials Science and Engineering.