

Our researches mainly focus on the the science and technology of nanomaterials, including fundamental physics and practical applications based on 0-D nanoparticles, 1D nanowire/nanotube and 2D layered materials, specially in graphene and layered transition metal dichalcogenides. Based on these materials, we explore light-materials interaction and device physics in those transistors.

### Techniques used in study

Chemical vapor deposition

e-beam lithography

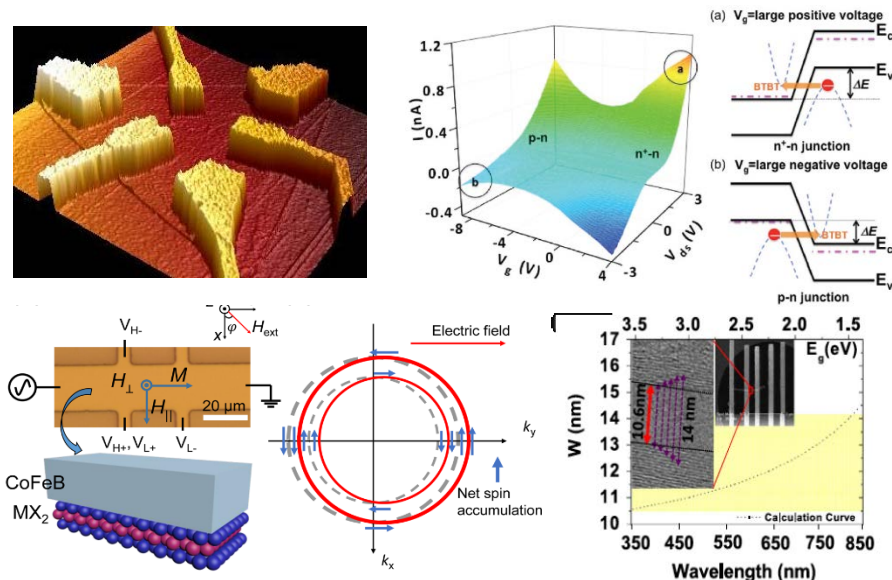
LED lithography

Micro-Raman and PL system

Electrical measurement system

Optical-electric-magnetic measurement system

Low temperature optical and electrical measurement system



Research achievements in the aspect of diverse 2D electronics

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### Background:

PhD in electrical engineering, National Taiwan University

### Funding:

Ministry of Science and Technology  
National Taiwan Normal University



### Selected Publications

- **Yann-Wen Lan\***, Po-Chun Chen, Yun-Yan Lin, Ming-Yang Li, Lain-Jong Li, Yu-Lin Tu, Fu-Liang Yang, Min-Cheng Chen and Kai-Shin Li\*. Scalable fabrication of a complementary logic inverter based on MoS<sub>2</sub> fin-shaped field effect transistors. DOI: 10.1039/C8NH00419F, **Nanoscale Horizons** 2019. IF : **9.391**)
- Che-Yu Lin, Xiaodan Zhu, Shin-Hung Tsai, Shiao-Po Tsai, Sidong Lei, Yumeng Shi, Lain-Jong Li, Shyh-Jer Huang, Wen-Fa Wu, Wen-Kuan Yeh, Yan-Kuin Su, Kang L. Wang and **Yann-Wen Lan\*** "Atomic-Monolayer Two-Dimensional Lateral Quasi-Heterojunction Bipolar Transistors with Resonant Tunneling Phenomenon" **ACS Nano**, 11 (11), pp 11015–11023, 2017, IF : **13.942**)

