

Kuei-Lin Chiu



Kuei-Lin Chiu
Assistant Professor

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[Quantum Circuits Laboratory](#)

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Office: PH6004

Lab:

PH3007 (measurement lab)

PH5003 (fabrication lab)

Education

- **Ph.D.**, Department of Physics, University of Cambridge (2008 - 2012)
- **M.S.**, Institute of Physics, National Chiao-Tung University (2004 - 2006)
- **B.S.**, Department of Applied Physics, National Chia-Yi University (2000-2004)

Major Experience

- **Assistant Professor**, National Sun Yat-sen University, Taiwan (2019/08 - Present)
- **Consultant**, Ministry of Education, ROC (Taiwan), Taiwan (2025/01 – present)
- **Consultant**, Quantum Computing Research Center in Hon Hai (Foxconn) Research Institute, Taiwan (2021/07 – present)
- **Director**, Innovation Intellectual Property Division, Office of Global Industry-Academe Collaboration and Advancement, NSYSU (2024/08 – present)
- **Local Organizing Committee**, The international conference on Quantum Information Processing (QIP) 2024 (2023/05 - 2024/01)
- **Associate Research Fellow (faculty)**, Key Lab of Quantum Information, University of Science and Technology of China, China (2017/07 – 2018/08)
- **Postdoctoral Fellow**, Department of Physics, Massachusetts Institute of Technology, USA (2015/01 – 2017/05)

● **Research Associate**, Cambridge Graphene Centre, Department of Engineering, University of Cambridge, UK (2013/03 – 2014/10)

Research Interests

- Quantum Computing
- Superconducting Quantum Devices
- 2D Material Devices
- Micro/Nanofabrication

Refereed Papers

- *"Integrating quantum materials into superconducting qubits"*. **Kuei-Lin Chiu***, Avishma J. Lasrado, Cheng-Han Lo, Chung-Ting Ke, V. Mosallanejad, Yen-Hsiang Lin; **Under review** (*corresponding author)
- *"Integration of graphene-based superconducting quantum circuits in 3D cavity"*. **Kuei-Lin Chiu***, Youyi Chang, Avishma J. Lasrado, Cheng-Han Lo, Yung-Hsiang Chen, Tao-Yi Hsu, Yen-Chih Chen, Yi-Chen Tsai, Samina, Yen-Hsiang Lin, Chung-Ting Ke*; **Physical Review Applied** **23**, 034059, **2025** (*corresponding author)
- *"Superconducting Quantum Circuits Based on 2D Materials"*. Cheng-Han Lo, Yung-Hsiang Chen, Avishma J Lasrado, Thomas Kuo, You-Yi Chang, Tao-Yi Hsu, Yen-Chih Chen, Guo-Ping Guo, **Kuei-Lin Chiu***; **SPIN** **13**, No. **04**, 2340021, **2023** (*corresponding author)
- *"The cell-centered Finite-Volume self-consistent approach for heterostructures: 1D electron gas at the Si-SiO₂ interface"*. Vahid Mosallanejad*, Haiou Li, Gong Cao, **Kuei-Lin Chiu***, Wenjie Dou, Guoping Guo*; **J. Phys.: Condensed Matter** **35**, 475301, **2023** (*corresponding author)
- *"A flux tunable superconducting quantum circuit based on Weyl semimetal MoTe₂"*. **Kuei-Lin Chiu***, D. G. Qian, J. W. Qiu, W. Y. Liu, D. Tan, V. Mosallanejad, S. Liu, Z. T. Zhang, Y. Zhao, D. P. Yu; **Nano Letters**, **20**, **12**, 8469–8475, **2020** (*corresponding author)
- *"Cryogenic Materials and Circuit Integration for Quantum Computer"*. Wei-Chen Chien, Shun-Jhou Jhan, **Kuei-Lin Chiu**, Yu-xi Liu, Eric Kao, Yu He,

Ching-Ray Chang; *Journal of Electronic Materials*, ISSN 1543-186X, 2020

- "The Second Quantum revolution with Quantum Computers". Ching-Ray Chang, Yeu-Chung Lin, **Kuei-Lin Chiu**, Tsung-Wei Huang; **AAPPS Bulletin, Feature Article, Vol. 30, No. 1, 2020**
- "Design of graphene waveguide: Effect of edge orientation and waveguide configuration". Nayyar Abbas Shah, Vahid Mosallanejad, **K. L. Chiu***, Guo-ping Guo; **Phys. Rev. B., 100, 125412, 2019** (*corresponding author)
- "Optoelectronic properties of bottom gate-defined in-plane monolayer WSe₂ p-n junction". Di Liu, Xiao-Zhuo Qi, **Kuei-Lin Chiu**, Takashi Taniguchi, Xi-Feng Ren, Guo-Ping Guo; **Chin. Phys. B 27, 87303, 2018**(URL: <http://cpb.iphy.ac.cn/EN/10.1088/1674-1056/27/8/087303>)
- "Coherent transport in Y-junction graphene waveguide". Vahid Mosallanejad, **K. L. Chiu** and Guo-Ping Guo; **J. Phys.: Condensed Matter 30, 445301, 2018**
- "Single-electron Transport in Graphene-like Nanostructures". **K. L. Chiu***, Y. Xu; **Physics Reports 669, 1-42, 2017** (*: first and corresponding author, selected as a highlighted article in Physics Reports; 5-Year Impact Factor: **22.124**) Interview: <https://www.journals.elsevier.com/physics-reports/highlighted-articles/layered-materials-could-be-the-future-of-quantum-computing>
- "Magnetic-field-induced charge redistribution in disordered graphene double quantum dots". **K. L. Chiu**, M. R. Connolly, A. Cresti, J. P. Griffiths, G. A. C. Jones, C. G. Smith; **Phys. Rev. B., 92, 155408, 2015**
- "Gigahertz quantized charge pumping in graphene quantum dots". M. R. Connolly, **K. L. Chiu**, S. P. Giblin, M. Kataoka, J. D. Fletcher, C. Chua, J. Griffiths, G. A. C. Jones, V. I. Fal'ko C. G. Smith, T. J. B. M. Janssen; **Nature Nanotechnology, 8, 417-420, 2013** (5-Year Impact Factor: **40.632**; Media coverage: highlighted in Sciencedaily, Physicsworld, Newelectronics, etc) Interview: <https://www.sciencedaily.com/releases/2013/05/130512141212.htm>
- "Single-particle probing of edge state formation in a graphene nanoribbon". **K. L. Chiu**, M. R. Connolly, A. Cresti, C. Chua, S. J. Chorley, F. Sfigakis,

S. Milana, A. C. Ferrari, J. P. Griffiths, G. A. C. Jones, C. G. Smith; ***Phys. Rev. B.* 85, 205452, 2012**

- “Tilted potential induced coupling of localized states in a graphene nanoconstriction”. M. R. Connolly, **K. L. Chiu**, A. Lombardo, A. Fasoli, A. C. Ferrari, D. Anderson, G. A. C. Jones, and C. G. Smith; ***Phys. Rev. B.* 83, 115441, 2011**
- “Scanning gate microscopy of current-annealed single layer graphene”. M. R. Connolly, **K. L. Chiu**, C. G. Smith, D. Anderson, G. A. C. Jones, A. Lombardo, A. Fasoli, and A. C. Ferrari; ***Appl. Phys. Lett.* 96, 113501, 2010**
- “Studies on the electronic and vibrational states of colloidal CdSe/ZnS quantum dots under high pressures”. C T Yuan, Y C Lin, Y N Chen, **K L Chiu**, W C Chou, D S Chuu, W H Chang, H S Lin, R C Ruaan and C M Lin; ***Nanotechnology* 18, 185402, 2007**

Book chapter

- “Single electron transport and possible quantum computing in 2D materials”

Invited chapter in “21st Century Nanoscience – A Handbook: Nanophotonics, Nanoelectronics, and Nanoplasmonics (Volume Six)”. **Kuei-Lin Chiu; Taylor & Francis (CRC Press), ISBN 9780815356417, November 5, 2020**

Invited Seminars and Lectures

1. “A flux tunable superconducting quantum circuit based on Weyl semimetal”. **Department of Physics, National Taiwan university, 13, December, 2019, Seminar Coordinator: Prof. Hsi-Sheng Goan**
2. “A superconducting transmon based on topological materials”. **Department of Physics, National Tsing Hua university, 3, December, 2019, Seminar Coordinator: Prof. Chung-Yu Mou**
3. “A superconducting qubit based on topological materials”. **Department of Physics, National Cheng Kung University, 18, November, 2019, Seminar Coordinator: Prof. Chung-Hsien Chou**
4. “A superconducting qubit based on topological materials”. **Institute of Physics, Academia Sinica (Taiwan), 11, November, 2019, Seminar Coordinator: Prof. Chii-Dong Chen**

5. *"A superconducting qubit based on topological materials"*. **Department of Electronics Engineering, National Chiao Tung University**, 1, November, 2019, Seminar Coordinator: **Prof. Hung-Ming Chen**
6. *"Superconducting Quantum Computing - an Engineering Point of View"*. **Department of Physics, National Cheng Kung University**; 8, October, 2018; Seminar Coordinator: **Prof. Yueh-Nan Chen**
7. *"Superconducting Quantum Computing - an Engineering Point of View"*. **Taiwan Semiconductor Manufacturing Company Limited (TSMC)**; 5, October, 2018; Seminar Coordinator: **Dr. William Gallagher**
8. *"Superconducting Quantum Computing - an Engineering Point of View"*. **Department of Electronics Engineering,, National Chiao Tung University**; 5, October, 2018; Seminar Coordinator: **Prof. Hung-Ming Chen**
9. *"Quantum computing in 2D material platforms"*. **Department of Physics, Southern University of Science and Technology**; 28, December, 2017; Seminar Coordinator: **Prof. Dapeng Yu**
10. "Spin Qubit coherent Control" Host of session for Prof. Lieven Vanderspyen and Prof. Ferdinand Kuemmeth; **International Workshop on Recent Experimental Progress in Semiconductor Qubits**, University of Science and Technology of China, Hefei, China, 13th - 15th September, 2017
11. *"Quantum computing - a brief overview from algorithms to platforms"* **Advanced Semiconductor and IC Technology Forum, Taiwan**; 15, December, 2017; Seminar Coordinator: **Prof. Wen-Tsuen Chen (Former president of National Tsing-Hua University, Taiwan)**
12. *"Single particle probing in 2D materials"*. **School of Electronic Science and Engineering, Nanjing University**; 07, July, 2017; Seminar Coordinator: **Prof. Feng-Qiu Wang**
13. *"Single particle probing in 2D materials"*. **Key Lab of Quantum Information, University of Science and Technology of China (USTC)**; 03, July, 2017; Seminar Coordinator: **Prof. Guo-Ping Guo**

14. “*Single-electron transport in graphene nanostructures*”**School of Physics and Astronomy, University of Manchester**; 17, March, 2014; Seminar Coordinator: **Prof. K. S. Novoselov, Prof. A.C. Ferrari, Prof. V. Fal'ko**

15. “*Probing and control of single-electron transport in graphene nanostructures*”**Department of Electrical and Systems Engineering, University of Pennsylvania**; 27, January, 2014; Seminar Coordinator: **Prof. Lee C. Bassett**

16. “*Charge pumping in graphene quantum dot*”. **Institute of Physics, Academia Sinica, Taiwan**; 01, November, 2012; Seminar Coordinator: **Prof. Chia-Seng Chang**

17. “*Charge pumping in graphene quantum dot*”.**National Center for Theoretical Sciences(South)**; 15, October, 2012; Seminar Coordinator: **Prof. Yueh-Nan Chen**

18. “*Transport properties of graphene nanodevices- nanoribbons, quantum dots and double quantum dots*”.**Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan**; 3, April, 2012; Seminar Coordinator: **Prof. Yuh-Lin Wang**

19. “*Transport properties of graphene nanodevices- nanoribbons, quantum dots and double quantum dots*”.**National Center for Theoretical Sciences(South)**; 28, March, 2012; Seminar Coordinator: **Prof. Yueh-Nan Chen**

Group members (updated until 2020)

Post-graduate:

Avishma Lasrado (PhD)

Ann Mariya Sherin (PhD)

羅程瀚 (MSc)

徐道宜 (MSc)

陳彥智 (MSc)

施士博 (MSc)

王景豪 (MSc)

鐘鴻儒 (MSc)

Undergraduate:

高嘉彰 (大四)

陳科佑 (大四)

李泳漢 (大二)

宋威達 (大二)