
Zhong Wan, Ph.D.

Department of Chemistry and Biochemistry, University of California, Los Angeles 90095 USA

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Professional Appointments

1. **Post-doctoral Researcher**, with Professor Xiangfeng Duan
Department of Chemistry and Biochemistry, UCLA 10/2018 – 07/2024
2. **Lecturer**
Department of Materials Science and Engineering, UCLA 08/2023 – 05/2024
3. **Research Assistant**, with Professor Leonid P. Rokhinson
Department of Physics and Astronomy, Purdue University 08/2012 – 05/2018
4. **Teaching Assistant**, with Professor David D. Nottle
Department of Physics and Astronomy, Purdue University 10/2011 – 05/2012

Educations and Training

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| 1. Purdue University | Physics | Ph.D. | 05/2018 |
| 2. Jilin University | Physics | B.S. | 06/2011 |

Honors and Awards

1. Nominee, Chancellor's Award for Postdoctoral Research, UCLA 2023
2. Postdoctoral Research Awards, Department of chemistry and biochemistry, UCLA 2021
3. Scholarship 2nd Prize, Department of physics, Jilin University 2007 and 2008

Research Interests

1. Platform for topological quantum computation.
2. Unconventional superconductivity.
3. Quantum material engineering.
4. Fractional quantum Hall effect in high mobility two-dimensional gas systems.

Publications

[Google Scholar](#)

*equal contribution

1. **Z. Wan***, Q. Qian*, Y. Huang, X. F. Duan, Layered hybrid superlattices as designable quantum solids, **Nature** 635, 49 (2024).
2. **Z. Wan***, G. Qiu*, H. Ren, Q. Qian, D. Xu, J. Y. Zhou, J. X. Zhou, B. Zhou, L. Wang, Y. Huang, K. L. Wang, X. F. Duan, Unconventional Superconductivity in Chiral Molecule Intercalated Tantalum Disulfide, **Nature** 632, 69 (2024).
3. Q. Qian*, **Z. Wan***, H. Takenaka*, J. K. Keum, T. J. Smart, L. Wang, P. Wang, J. Y. Zhou, H. Ren, D. Xu, Y. Huang, Y. Ping, X. F. Duan, Photocarrier-induced persistent structural polarization in soft-lattice lead halide perovskites, **Nature Nanotechnology** 18, 357 (2023).
4. B. Zhao*, **Z. Wan***, Y. Liu, J. Xu, X. Yang, D. Shen, Z. Zhang, C. Guo, Q. Qian, J. Li, R. Wu, Z. Lin, X. Yan, B. Li, Z. Zhang, H. Ma, B. Li, X. Chen, Y. Qiao, I. Shakir, Z. Almutairi, F. Wei, Y. Zhang, X. Pan, Y. Huang, Y. Ping, X. D. Duan, X. F. Duan, High-order superlattices by rolling up van der Waals heterostructures, **Nature** 519, 385 (2021).
5. B. Li*, **Z. Wan***, C. Wang*, P. Chen*, B. Huang, X. Cheng, Q. Qian, J. Li, Z. Zhang, G. Sun, B. Zhao, H. Ma, R. Wu, Z. Wei, Y. Liu, L. Liao, Y. Ye, Y. Huang, X. D. Xu, X. D. Duan, W. Ji, X. F. Duan, Van der Waals epitaxial growth of air-stable CrSe₂ nanosheets with thickness tunable magnetic orders, **Nature Material** 20, 818 (2021).
6. Y. Wang*, **Z. Wan***, Q. Qian*, Y. Liu, Z. Kang, Z. Fan, P. Wang, Y. Wang, C. Li, C. Jia, Z. Lin, J. Guo, I. Shakir, M. Goorsky, X. D. Duan, Y. Zhang, Y. Huang, X. F. Duan, Probing photoelectrical transport in lead halide perovskites with van der Waals contacts, **Nature Nanotechnology** 15, 768–775 (2020).
7. H. Ma*, **Z. Wan***, J. Li, R. Wu, Z. Zhang, B. Li, B. Zhao, Q. Qian, Y. Liu, Q. Xia, G. Guo, X. Duan, and X. Duan, Phase-Tunable Synthesis of Ultrathin Layered Tetragonal CoSe and Nonlayered Hexagonal CoSe Nanoplates, **Advanced Materials** 31, 1900901 (2019).

8. T. Wu*, **Z. Wan***, A. Kazakov*, Y. Wang, G. Simion, J. Liang, K. W. West, K. Baldwin, L. N. Pfeiffer, Y. Lyanda-Geller, and L. P. Rokhinson, Formation of helical domain walls in the fractional quantum Hall regime as a step toward realization of high-order non-Abelian excitations, *Physical Review B* 97, 245304 (2018).
9. **Z. Wan**, A. Kazakov, M. J. Manfra, L. N. Pfeiffer, K. West and L. P. Rokhinson, Induced superconductivity in high-mobility two-dimensional electron gas in gallium arsenide heterostructures, *Nature communication* 6, 7426 (2015).
10. Jingyuan Zhou, Huaying Ren, Jingxuan Zhou, **Zhong Wan**, Qi Qian, Bosi Peng, Shuaijing Du, Xingxu Yan, Xiaoqing Pan, Zdenek Sofer, Ao Zhang, Yu Huang, Xiangfeng Duan, Modular assembly of a library of hybrid superlattices and artificial quantum solids, *Matter* 7, 1131 (2024).
11. Q. Qian, H. Ren, J. Y. Zhou, **Z. Wan**, J. X. Zhou, X. Yan, J. Cai, P. Wang, B. Li, Z. Sofer, B. Li, X. D. Duan, X. Pan, Y. Huang, X. F. Duan, Chiral molecular intercalation superlattices, *Nature* 606, 902 (2022).
12. H Ren, **Z Wan**, X Duan, Van der Waals superlattices, *National Science Review* 9, nwab166 (2022).
13. B. Li, X. Deng, W. Shu, X. Cheng, Q. Qian, **Z. Wan**, B. Zhao, X. Shen, R. Wu, S. Shi, H. Zhang, Z. Zhang, X. Yang, J. Zhang, M. Zhong, Q. Xia, J. Li, Y. Liu, L. Liao, Y. Ye, L. Dai, Y. Peng, B. Li, X. Duan, Air-stable ultrathin Cr₃Te₄ nanosheets with thickness-dependent magnetic skyrmions. *Mater. Today* 57, 66 (2022).
14. Huifang Ma, Qi Qian, Biao Qin, Zhong Wan, Ruixia Wu, Bei Zhao, Hongmei Zhang, Zucheng Zhang, Jia Li, Zhengwei Zhang, Bo Li, Lin Wang, Xidong Duan Controlled Synthesis of Ultrathin PtSe₂ Nanosheets with Thickness-Tunable Electrical and Magnetoelectrical Properties, *Advanced Science* 9, 2103507 (2022).
15. Z. Lin, **Z. Wan**, F. Song, B. Huang, C. Jia, Q. Qian, J. S. Kang, Y. Wu, X. Yan, X. F. Duan, High-yield exfoliation of 2D semiconductor monolayers and reassembly of organic/inorganic artificial superlattices, *Chem* 7, 1887 (2021).
16. H. Ma, Q. Qian, B. Qin, **Z. Wan**, R. Wu, B. Zhao, H. Zhang, Z. Zhang, J. Li, Z. Zhang, B. Li, L. Wang, X. Duan, Controlled synthesis of ultrathin PtSe₂ nanosheets with thickness-tunable electrical and magnetoelectrical properties. *Adv. Sci.* 9, 2103507 (2021).
17. Y. Wang, V. Ponomarenko, **Z. Wan**, K. W. West, K. Baldwin, L. N. Pfeiffer, Y. Lyanda-Geller, L. P. Rokhinson, Transport in helical Luttinger liquids in the fractional quantum hall regime, *Nature Communication* 12, 5312 (2021)
18. Q. Qian, **Z. Wan**, X. F. Duan, Boosting superconductivity in organic-inorganic superlattices, *Science Bulletin* 65, 177 (2020).
19. H. Ma, W. Dang, X. Yang, B. Li, Z. Zhang, P. Chen, Y. Liu, **Z. Wan**, Q. Qian, J. Luo, K. Zang, X. Duan, and X. Duan, Chemical Vapor Deposition Growth of Single Crystalline CoTe₂ Nanosheets with Tunable Thickness and Electronic Properties, *Chemistry of Materials* 30, 8891 (2018).
20. K. Ramadoss, N. Mandal, X. Dai, **Z. Wan**, Y. Zhou, L. P. Rokhinson, Y. P. Chen, J. Hu, and S. Ramanathan, Sign-reversal of magnetoresistance in a perovskite nickelate by electron doping, *Physical Review B* 94, 235124 (2016).

Conferences and Seminars

1. Seminar: “Signature of chiral superconductivity in molecular-intercalated two-dimensional superconductor”. Department of Physics and Astronomy, University of California Los Angeles, January 2023.
2. Invited talk: “2D Hybrid Superlattices and Artificial Quantum Solids”. AVS 69th, November 2023.
3. Seminar: “Signature of chiral superconductivity in molecular-intercalated two-dimensional superconductor”. Department of Physics & Astronomy, University of Southern California, November 2023.
4. Seminar: “Understanding quasiparticle states in quantum materials and devices”. Department of Electrical & Computer Engineering University of California Los Angeles, May 2023.
5. Seminar: “Boundless Boundary: Quantum transport across heterostructure”. Department of Quantum Science and Engineering, SUSTech, January 2022.
6. Invited talk: “Induced superconductivity in high mobility two dimensional electron gas in GaAs heterostructures”. APS March meeting 2016.
7. Talk: “Ballistic superconductivity in high mobility two-dimensional electron gas in GaAs heterostructures”. APS March meeting 2015.

Professional Experiences

1. Reviewer, *Nano Letter*, since 2024

2. Reviewer, *Journal of Superconductivity and Novel Magnetism*, since 2023;
3. Reviewer, *Nano Research*, since 2019;
4. Reviewer, *Physical Review B*, since 2018;
5. Member, American Physical Society, since 2015.