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EMPLOYMENT

University of California, Berkeley, and Lawrence Berkeley National Laboratory

Postdoctoral Researcher February 2023 – present

California Institute of Technology

IQIM Postdoctoral Scholar September 2021 – January 2023

University of California, Santa Barbara

Graduate Student Researcher January 2016 – August 2021

Teaching Assistant September 2015 – December 2015

EDUCATION

PhD University of California, Santa Barbara, Physics September 2021
Advisor: Dr. Andrea F. Young

BS University of Science and Technology of China, Physics June 2015

PUBLICATIONS

Peer-reviewed articles

A. Assouline, T. Wang, **H. Zhou**, L. A. Cohen, F. Yang, R. Zhang, T. Taniguchi, K. Watanabe, R. S. K. Mong, M. P. Zaletel, A. F. Young, “Energy gap of the even-denominator fractional quantum Hall state in bilayer graphene”, [Physical Review Letter 132, 046603 \(2024\)](#)

Y. Zhang, R. Polski, A. Thomson, É. Lantagne-Hurtubise, C. Lewandowski, **H. Zhou**, K. Watanabe, T. Taniguchi, J. Alicea, S. Nadj-Perge, “Enhanced superconductivity in spin-orbit proximitized bilayer graphene. [Nature 613, 268–273 \(2023\)](#)”

A. Jenkins, S. Baumann, **H. Zhou**, S. A. Meynell, D. Yang, K. Watanabe, T. Taniguchi, A. Lucas, A. F. Young, A. C. Bleszynski Jayich, “Imaging the breakdown of ohmic transport in graphene.” [Physical Review Letter 129, 087701 \(2022\)](#)

H. Zhou, C. Huang, N. Wei, T. Taniguchi, K. Watanabe, M. P. Zaletel, Z. Papić, A. H. MacDonald, A. F. Young. “Strong-Magnetic-Field Magnon Transport in Monolayer Graphene.” [Physical Review X 12, 021060 \(2022\)](#).

H. Zhou, L. Holleis, Y. Saito, L. Cohen, W. Huynh, C. L. Patterson, F. Yang, T. Taniguchi, K. Watanabe, A. F. Young. “Isospin magnetism and spin-polarized superconductivity in Bernal bilayer graphene.” [Science 375, 774 \(2022\)](#).

H. Zhou, T. Xie, T. Taniguchi, K. Watanabe, A. F. Young. “Superconductivity in rhombohedral trilayer graphene.” [Nature 598, 434–438 \(2021\)](#).

H. Zhou, T. Xie, A. Ghazaryan, T. Holder, J. Ehrets, E. M. Spanton, T. Taniguchi, K. Watanabe, E. Berg, M. Serbyn, A. F. Young. “Half and quarter metals in rhombohedral trilayer graphene.” [Nature 598, 429–433 \(2021\)](#).

H. Zhou, H. Polshyn, T. Taniguchi, K. Watanabe, A. F. Young. “Solids of quantum Hall skyrmions in graphene.” [Nature Physics 16 154-158 \(2020\)](#).

J. O. Island, X. Cui, C. Lewandowski, J.Y. Khoo, E. M. Spanton, **H. Zhou**, D. Rhodes, J.C. Hone, T. Taniguchi, K. Watanabe, L.S. Levitov, M.P. Zaletel, A.F. Young. “Spin-orbit driven band inversion in bilayer graphene by van der Waals proximity effect.” [Nature 571, 85–89 \(2019\)](#).

H. Polshyn, **H. Zhou**, E. M. Spanton, T. Taniguchi, K. Watanabe, and A. F. Young. “Quantitative transport measurements of fractional quantum Hall energy gaps in edgeless graphene devices.” [Physical Review Letters 121, 226801 \(2018\)](#).

A. A. Zibrov, E.M. Spanton, **H. Zhou**, C. Kometter, T. Taniguchi, K. Watanabe, A.F. Young “Even denominator fractional quantum Hall states at an isospin transition in monolayer graphene.” [Nature Physics 14, 930-935 \(2018\)](#).

E. M. Spanton, A. A. Zibrov, **H. Zhou**, T. Taniguchi, K. Watanabe, M. P. Zaletel, A. F. Young. “Observation of fractional Chern insulators in a van der Waals heterostructure.” [Science 360, 62–66 \(2018\)](#).

A. A. Zibrov, C. R. Kometter, **H. Zhou**, E. M. Spanton, T. Taniguchi, K. Watanabe, M. P. Zaletel, and A. F. Young. “Tunable interacting composite fermion phases in a half-filled bilayer-graphene Landau level.” [Nature 549, 360–364 \(2017\)](#).

Preprints

M. Odeh, K. Godeneli, E. Li, R. Tangirala, **H. Zhou**, X. Zhang, Z.-H. Zhang, A. Sipahigil, “Non-Markovian dynamics of a superconducting qubit in a phononic bandgap”, [arXiv:2312.01031](https://arxiv.org/abs/2312.01031).

H. Kim, Y. Choi, É. Lantagne-Hurtubise, C. Lewandowski, A. Thomson, L. Kong, **H. Zhou**, E. Baum, Y. Zhang, L. Holleis, K. Watanabe, T. Taniguchi, A. F. Young, J. Alicea, S. Nadj-Perge, “Imaging inter-valley coherent order in magic-angle twisted trilayer graphene.” [arXiv:2304.10586](https://arxiv.org/abs/2304.10586).

L. Holleis, C. L. Patterson, Y. Zhang, H. M. Yoo, **H. Zhou**, T. Taniguchi, K. Watanabe, S. Nadj-Perge, A. F. Young, “Ising superconductivity and nematicity in Bernal bilayer graphene with strong spin orbit coupling.” [arXiv:2303.00742](https://arxiv.org/abs/2303.00742).

T. Arp, O. Sheekey, **H. Zhou**, C.L. Tschirhart, C. L. Patterson, H. M. Yoo, L. Holleis, E. Redekop, G. Babikyan, T. Xie, J. Xiao, Y. Vituri, T. Holder, T. Taniguchi, K. Watanabe, M. E. Huber, E. Berg, A. F. Young, “Intervalley coherence and intrinsic spin-orbit coupling in rhombohedral trilayer graphene.” [arXiv:2310.03781](https://arxiv.org/abs/2310.03781).

PRESENTATIONS

“Magnetism and Superconductivity in Crystalline Multilayer Graphene”, Gordon Research Seminar: Topological and Correlated Matter, Ventura, California, May 2023

“Observation of Magnetism and Superconductivity in Crystalline Multilayer Graphene”, APS March meeting, Las Vegas, Nevada, March 2023.

“Magnetism and Superconductivity in Multilayer Graphene”, Institute of Physics, Chinese Academy of Sciences, December 2022.

“Correlated electronic phases in crystalline graphene Van der Waals heterostructures”, Columbia University, October 2022.

“Correlated electronic phases in crystalline graphene Van der Waals heterostructures”, University of California, Berkeley, October 2022.

“Correlated electronic phases in crystalline graphene Van der Waals heterostructures”, Emerging Star Seminar Series, Hong Kong University of Science and Technology, August 2022

“Magnetism and Superconductivity in Crystalline Few-Layer Graphene”, APS March Meeting, Chicago, Massachusetts, March 2022.

“Magnetism and Superconductivity in Crystalline Few-Layer Graphene”, IQIM Seminar at California Institute of Technology, January 2022.

“Magnetism and Superconductivity in Crystalline Few-Layer Graphene”, Condensed Matter Seminar/Zeminar Series, Columbia University, November 2021.

“Ferromagnetism and Superconductivity in Rhombohedral Trilayer Graphene”, USTC Shi Ru Wei Seminar Series, September 2021.

“Ferromagnetism and Superconductivity in Rhombohedral Trilayer Graphene.” UCSB Quantum Foundry Seminar, June 2021.

“Itinerant Spin and Valley Ferromagnetism in Rhombohedral Trilayer Graphene (Part II).” APS March Meeting, March 2021.

“Spin and Valley Ferromagnetism in Graphene van der Waals heterostructures.”, Condensed Matter Seminar, Princeton University, December 2020.

“Spin Wave Transport at a Charge Density Wave to Antiferromagnet Phase Transition in Monolayer Graphene.” Anyon MURI Seminar, September 2020.

“Spin wave transport through electron solids and fractional quantum Hall liquids in graphene”, APS March meeting, Boston, Massachusetts, March 2019.

“Spin wave transport through electron solids and fractional quantum Hall liquids in graphene”, QIS Workshop, East Lansing, Michigan, October 2018.

“Detecting Spin Structures of Graphene Quantum Hall States”, APS March meeting, Los Angeles, California, March 2018.

“Edge state structure of the bilayer graphene Landau levels”, APS March meeting, New Orleans, Louisiana, March 2017.