

Xiao Li

Department of Physics

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Biography

Dr. Xiao Li recently joined the Department of Physics as an Assistant Professor. Previously he worked as a postdoc associate in the Condensed Matter Theory Center, University of Maryland (College Park) from 2015 to 2018. Dr. Li received his BSc degree from Peking University in 2008, and his PhD degree in Physics from the University of Texas at Austin in 2014.

Dr. Li is mainly interested in novel states of matter that arise due to the interplay between topology, disorder, and electron-electron interactions. His research background includes electronic properties in two-dimensional materials, quantum Hall physics, and semiconductor-based spin qubits. Recently Dr. Li is mainly interested in various aspects of non-equilibrium systems such as many-body localization and quantum information scrambling, as well as the application of machine learning techniques in condensed matter physics.

Employment

Department of Physics

City University of Hong Kong

3 Jan 2019 → present

Research outputs

Phonon scattering induced carrier resistivity in twisted double-bilayer graphene

Li, X., Wu, F. & Das Sarma, S., 15 Jun 2020, In : Physical Review B: covering condensed matter and materials physics. 101, 24, 245436.Scopus citations: 3

Mobility edge and intermediate phase in one-dimensional incommensurate lattice potentials

Li, X. & Das Sarma, S., 1 Feb 2020, In : Physical Review B. 101, 6, 064203.Scopus citations: 3

Author Correction: Unconventional valley-dependent optical selection rules and landau level mixing in bilayer graphene

Ju, L., Wang, L., Li, X., Moon, S., Ozerov, M., Lu, Z., Taniguchi, T. & 6 others, Watanabe, K., Mueller, E., Zhang, F., Smirnov, D., Rana, F. & McEuen, P. L., 2020, In : Nature Communications. 11, 3271.

Unconventional valley-dependent optical selection rules and landau level mixing in bilayer graphene

Ju, L., Wang, L., Li, X., Moon, S., Ozerov, M., Lu, Z., Taniguchi, T. & 6 others, Watanabe, K., Mueller, E., Zhang, F., Smirnov, D., Rana, F. & McEuen, P. L., 2020, In : Nature Communications. 11, 1, 2941.

Butterfly effect in interacting Aubry-Andre model: Thermalization, slow scrambling, and many-body localization

Xu, S., Li, X., Hsu, Y., Swingle, B. & Das Sarma, S., Oct 2019, In : Physical Review Research. 1, 3, 032039.

Observation of Many-Body Localization in a One-Dimensional System with a Single-Particle Mobility Edge

Kohlert, T., Scherg, S., Li, X., Lueschen, H. P., Das Sarma, S., Bloch, I. & Aidelsburger, M., 3 May 2019, In : Physical Review Letters. 122, 17, 170403.Scopus citations: 23

Machine Learning Many-Body Localization: Search for the Elusive Nonergodic Metal

Hsu, Y., Li, X., Deng, D. & Das Sarma, S., 14 Dec 2018, In : Physical Review Letters. 121, 24, 245701.Scopus citations: 17

Single-Particle Mobility Edge in a One-Dimensional Quasiperiodic Optical Lattice

Lüschen, H. P., Scherg, S., Kohlert, T., Schreiber, M., Bordia, P., Li, X., Das Sarma, S. & 1 others, Bloch, I., 20 Apr 2018, In : Physical Review Letters. 120, 16, 160404.Scopus citations: 48

Mobility edges in one-dimensional bichromatic incommensurate potentials

Li, X., Li, X. & Das Sarma, S., 15 Aug 2017, In : Physical Review B. 96, 8, 085119.Scopus citations: 41

Quantum simulation of a Fermi-Hubbard model using a semiconductor quantum dot array

Hensgens, T., Fujita, T., Janssen, L., Li, X., Van Diepen, C. J., Reichl, C., Wegscheider, W. & 2 others, Das Sarma, S. & Vandersypen, L. M. K., 3 Aug 2017, In : Nature. 548, 7665, p. 70-73Scopus citations: 68

Intrinsic errors in transporting a single-spin qubit through a double quantum dot

Li, X., Barnes, E., Kestner, J. P. & Das Sarma, S., Jul 2017, In : Physical Review A. 96, 1, 012309.Scopus citations: 8

Theory of interaction-induced renormalization of Drude weight and plasmon frequency in chiral multilayer graphene

Li, X. & Tse, W., 15 Feb 2017, In : Physical Review B. 95, 8, 085428.Scopus citations: 1

Type-II Dirac surface states in topological crystalline insulators

Chiu, C., Chan, Y., Li, X., Nohara, Y. & Schnyder, A. P., 15 Jan 2017, In : Physical Review B. 95, 3, 035151.Scopus citations: 19

Weyl fermions with arbitrary monopoles in magnetic fields: Landau levels, longitudinal magnetotransport, and density-wave ordering

Li, X., Roy, B. & Das Sarma, S., 15 Nov 2016, In : Physical Review B. 94, 19, 195144.Scopus citations: 25

SU(3) Quantum Hall Ferromagnetism in SnTe

Li, X., Zhang, F. & MacDonald, A. H., 15 Jan 2016, In : Physical Review Letters. 116, 2, 026803.Scopus citations: 18

Spontaneous symmetry breaking and quantum Hall valley ordering on the surface of topological hexaborides

Li, X., Roy, B. & Das Sarma, S., 15 Dec 2015, In : Physical Review B - Condensed Matter and Materials Physics. 92, 23, 235144.Scopus citations: 4

Exciton polaritons in transition-metal dichalcogenides and their direct excitation via energy transfer

Gartstein, Y. N., Li, X. & Zhang, C., 15 Aug 2015, In : Physical Review B - Condensed Matter and Materials Physics. 92, 7, 075445.Scopus citations: 26

Spontaneous Layer-Pseudospin Domain Walls in Bilayer Graphene

Li(李潇), X., Zhang, F., Niu, Q. & MacDonald, A. H., 12 Sep 2014, In : Physical Review Letters. 113, 11, 116803.Scopus citations: 21

Valley-splitting and valley-dependent inter-Landau-level optical transitions in monolayer MoS₂ quantum Hall systems

Chu, R., Li, X., Wu, S., Niu, Q., Yao, W., Xu, X. & Zhang, C., 15 Jul 2014, In : Physical Review B - Condensed Matter and Materials Physics. 90, 4, 045427.Scopus citations: 52

Magnetic control of the valley degree of freedom of massive Dirac fermions with application to transition metal dichalcogenides

Cai, T., Yang, S. A., Li, X., Zhang, F., Shi, J., Yao, W. & Niu, Q., 15 Sep 2013, In : Physical Review B - Condensed Matter and Materials Physics. 88, 11, 115140.Scopus citations: 65

Topological phases in gated bilayer graphene: Effects of Rashba spin-orbit coupling and exchange field

Qiao, Z., Li, X., Tse, W., Jiang, H., Yao, Y. & Niu, Q., 15 Mar 2013, In : Physical Review B - Condensed Matter and Materials Physics. 87, 12, 125405.Scopus citations: 33

Unconventional quantum hall effect and tunable spin hall effect in Dirac materials: Application to an isolated MoS₂ Trilayer
Li, X., Zhang, F. & Niu, Q., 8 Feb 2013, In : Physical Review Letters. 110, 6, 066803.Scopus citations: 134

Unbalanced edge modes and topological phase transition in gated trilayer graphene

Li, X., Qiao, Z., Jung, J. & Niu, Q., 15 May 2012, In : Physical Review B - Condensed Matter and Materials Physics. 85, 20, 201404.Scopus citations: 18

Microscopic theory of quantum anomalous Hall effect in graphene

Qiao, Z., Jiang, H., Li, X., Yao, Y. & Niu, Q., 15 Mar 2012, In : Physical Review B - Condensed Matter and Materials Physics. 85, 11, 115439.Scopus citations: 91