

Main Publications (first author and corresponding author)

30 main publications, including 6 Physical Review Letters, 1 Nature Communications, 1 Physical Review B Letter, 5 Physical Review B Rapid Communications, and 11 Physical Review B Regular Articles.

1. **Cong Xiao***, Weikang Wu, Hui Wang, Yue-Xin Huang, Xiaolong Feng, Huiying Liu*, Guang-Yu Guo*, Qian Niu, Shengyuan A Yang, “*Time-Reversal-Even Nonlinear Current Induced Spin Polarization*”, [Phys. Rev. Lett. 130, 166302 \(2023\)](#).
2. Dawei Zhai, Cong Chen, **Cong Xiao***, and Wang Yao*, “*Layer-Contrasted Hall Effect in Twisted Bilayers with Time Reversal Symmetry*”, [Nat. Commun. 14, 1961 \(2023\)](#).
3. Cong Chen, Dawei Zhai, **Cong Xiao***, and Wang Yao*, “*Crossed Nonlinear Dynamical Hall Effect in Twisted Bilayers*”, [arXiv: 2303.09973](#).
4. Yue-Xin Huang, Xiaolong Feng, Hui Wang, **Cong Xiao***, and Shengyuan A. Yang, “*Intrinsic Nonlinear Planar Hall Effect*”, [Phys. Rev. Lett. 130, 126303 \(2023\)](#).
5. Hui Wang, Yue-Xin Huang, Huiying Liu, Xiaolong Feng, Jiaojiao Zhu, Weikang Wu, **Cong Xiao***, Shengyuan A Yang, “*Theory of Intrinsic In-Plane Hall Effect*”, [arXiv: 2211.05978](#)
6. **Cong Xiao**, Huiying Liu*, Weikang Wu*, Hui Wang, Qian Niu, and Shengyuan A. Yang, “*Intrinsic Nonlinear Electric Spin Generation in Centrosymmetric Magnets*”, [Phys. Rev. Lett. 129, 086602 \(2022\)](#).
7. Huiying Liu, Jianzhou Zhao*, Yue-Xin Huang, Weikang Wu, Xian-Lei Sheng, **Cong Xiao***, and Shengyuan A. Yang, “*Intrinsic Second-Order Anomalous Hall Effect and Its Application in Compensated Antiferromagnets*”, [Phys. Rev. Lett. 127, 277202 \(2021\)](#).
8. **Cong Xiao** and Qian Niu, “*Conserved current of nonconserved quantities*”, [Phys. Rev. B 104, L241411 \(2021\)](#).
9. **Cong Xiao**, Bangguo Xiong, and Qian Niu, “*Electric driving of magnetization dynamics in a hybrid insulator*”, [Phys. Rev. B 104, 064433 \(2021\)](#).
10. Zhi Wang, Liang Dong, **Cong Xiao***, and Qian Niu, “*Berry curvature effects on quasiparticle dynamics in superconductors*”, [Phys. Rev. Lett. 126, 187001 \(2021\)](#).
11. **Cong Xiao**, Yafei Ren, and Bangguo Xiong, “*Adiabatically induced orbital magnetization*”, [Phys. Rev. B 103, 115432 \(2021\)](#).
12. **Cong Xiao**, Huiying Liu, Jianzhou Zhao, Shengyuan A. Yang, and Qian Niu, “*Thermoelectric generation of orbital magnetization in metals*”, [Phys. Rev. B 103, 045401](#)

(2021).

13. **Cong Xiao** and Qian Niu, “*Unified bulk semiclassical theory for intrinsic thermal transport and magnetization currents*”, [Phys. Rev. B 101, 235430 \(2020\)](#).
14. **Cong Xiao**, Hua Chen*, Yang Gao, Di Xiao, Allan H. MacDonald, and Qian Niu, “*Linear magnetoresistance induced by intra-scattering semiclassics of Bloch electrons*”, [Phys. Rev. B 101, 201410\(R\) \(2020\)](#).
15. Liang Dong, **Cong Xiao***, Bangguo Xiong and Qian Niu, “*Berry-phase effects in dipole density and Mott relation*”, [Phys. Rev. Lett. 124, 066601 \(2020\)](#).
16. Weiwei Chen, **Cong Xiao***, Qinwei Shi and Qunxiang Li*, “*Spin-orbit related power-law dependence of the diffusive conductivity on the carrier density in disordered Rashba two-dimensional electron systems*”, [Phys. Rev. B 101, 020203\(R\) \(2020\)](#).
17. **Cong Xiao**, Z. Z. Du, and Qian Niu, “*Theory of nonlinear Hall effects: Modified semiclassics from quantum kinetics*”, [Phys. Rev. B 100, 165422 \(2019\)](#).
18. **Cong Xiao**, Hailong Zhou, and Qian Niu, “*Scaling parameters in anomalous and nonlinear Hall effects depend on temperature*”, [Phys. Rev. B 100, 161403\(R\) \(2019\)](#).
19. **Cong Xiao**, Yi Liu, Zhe Yuan, Shengyuan A. Yang, and Qian Niu, “*Temperature dependence of side-jump spin Hall conductivity*”, [Phys. Rev. B 100, 085425 \(2019\)](#).
20. Hailong Zhou*, **Cong Xiao***, and Qian Niu, “*Valley-contrasting orbital magnetic moment induced negative magnetoresistance*”, [Phys. Rev. B 100, 041406\(R\) \(2019\)](#).
21. **Cong Xiao**, Ying Liu, Ming Xie, Shengyuan A. Yang, and Qian Niu, “*Theory of the phonon side-jump contribution in anomalous Hall effect*”, [Phys. Rev. B 99, 245418 \(2019\)](#).
22. **Cong Xiao**, Jihang Zhu, Bangguo Xiong, and Qian Niu, “*Conserved spin current for the Mott relation*”, [Phys. Rev. B 98, 081401\(R\) \(2018\)](#).
23. **Cong Xiao**, Bangguo Xiong, and Fei Xue, “*Boltzmann approach to spin-orbit-induced transport in effective quantum theories*”, [J. Phys: Condens. Matter, 30, 415002 \(2018\)](#).
24. **Cong Xiao**, “*Semiclassical Boltzmann theory of spin Hall effects in giant Rashba systems*”, [Front. Phys. 13, 137202 \(2018\)](#).
25. **Cong Xiao** and Qian Niu, “*Semiclassical theory of spin-orbit torques in disordered multiband electron systems*”, [Phys. Rev. B 96, 045428 \(2017\)](#).
26. **Cong Xiao** and Qian Niu, “*Rashba torque beyond the Boltzmann regime*”, [Phys. Rev. B](#)

96, 035423 (2017).

27. **Cong Xiao**, Dingping Li, and Zhongshui Ma, “*The role of band-index-dependent transport relaxation times in anomalous Hall effect*”, [Phys. Rev. B **95**, 035426 \(2017\)](#).
28. **Cong Xiao**, Dingping Li, and Zhongshui Ma, “*Unconventional thermoelectric behaviors and enhancement of figure of merit in Rashba spintronic systems*” [Phys. Rev. B **93**, 075150 \(2016\)](#).
29. **Cong Xiao** and Dingping Li, “*Semiclassical magnetotransport in strongly spin-orbit coupled Rashba two-dimensional electron systems*”, [J. Phys: Condens. Matter, **23**, 235801 \(2016\)](#).
30. **Cong Xiao**, Dingping Li, and Zhongshui Ma, “*Thermoelectric response of spin polarization in Rashba spintronic systems*”, [Front. Phys. **11**, 117201 \(2016\)](#).

Other Publications

7 other publications, including 2 Physical Review Letters, 1 Nature Communications, and 4 Physical Review B Regular Articles.

1. Ziming Zhu, Huiying Liu, Yongheng Ge, Zeying Zhang, Weikang Wu, **Cong Xiao**, Shengyuan A. Yang, “*Third-order charge transport in a magnetic topological semimetal*”, [Phys. Rev. B **107**, 205120 \(2023\)](#).
2. Yang Wang, Sivakumar V. Mambakkam, Yue-Xin Huang, Yong Wang, Yi Ji, **Cong Xiao**, Shengyuan A. Yang, Stephanie A. Law, and John Q. Xiao, “*Observation of nonlinear planar Hall effect in magnetic-insulator–topological-insulator heterostructures*”, [Phys. Rev. B **106**, 155408 \(2022\)](#).
3. Huiying Liu, Jianzhou Zhao, Yue-Xin Huang, Xiaolong Feng, **Cong Xiao**, Weikang Wu, Shen Lai, Wei-bo Gao, and Shengyuan A. Yang, “*Berry connection polarizability tensor and third-order Hall effect*”, [Phys. Rev. B **105**, 045118 \(2022\)](#).
4. Yafei Ren, **Cong Xiao**, Daniyar Saparov, and Qian Niu, “*Phonon Magnetic Moment from Electronic Topological Magnetization*”, [Phys. Rev. Lett. **127**, 186403 \(2021\)](#).
5. Archana Tiwari, Fangchu Chen, Shazhou Zhong, Elizabeth Drueke, Jahyun Koo, Austin Kaczmarek, **Cong Xiao**, Jingjing Gao, Xuan Luo, Qian Niu, Yuping Sun, Binghai Yan, Liuyan Zhao, Adam W. Tsen, “*Giant c-axis nonlinear anomalous Hall effect in Td-MoTe2 and WTe2*”, [Nat. Commun. **12**, 2049 \(2021\)](#).

6. Ying Liu, Zhi-Ming Yu, **Cong Xiao**, and Shengyuan A. Yang, “*Quantized Circulation of Anomalous Shift in Interface Reflection*”, [Phys. Rev. Lett. 125](#), 076801 (2020).
7. Jingjing Feng, **Cong Xiao**, Yang Gao, and Qian Niu, “*Magnetic field influenced electron-impurity scattering and magnetotransport*”, [Phys. Rev. B 100](#), 134202 (2019).