

## Simin Nie

Sr Research Scientist-Physical, Mechanical Engineering

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#### ACADEMIC APPOINTMENTS

- Sr Research Scientist-Physical, Mechanical Engineering

#### PROFESSIONAL EDUCATION

- Doctor of Philosophy, Institute Of Physics, Chinese academy of Sciences , Theoretical Physics (2016)

### Publications

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#### PUBLICATIONS

- **Layer-dependent and gate-tunable Chern numbers in 2D kagome ferromagnet  $\text{Yb}_2(\text{C}_6\text{H}_4)_3$  with a large band gap** *NPJ COMPUTATIONAL MATERIALS*  
Guo, J., Nie, S., Prinz, F. B.  
2026; 12 (1)
- **Interwoven magnetic kagome metal overcomes geometric frustration.** *Nature materials*  
Cheng, E., Wang, K., Hao, Y., Chen, W., Tan, H., Li, Z., Wang, M., Gao, W., Wu, D., Sun, S., Ying, T., Nie, S., Li, et al  
2025
- **Modulating superconductivity in elementary materials by doping.** *Scientific reports*  
Nie, S., Zhang, X., Guo, J., Prinz, F. B.  
2025; 15 (1): 43911
- **Mixed Conducting Oxide Coating for Lithium Batteries.** *ACS nano*  
Jung, Y., Mueller, J. E., Chaikasetsin, S., Han, G. D., Nie, S., Han, H. S., Gür, T. M., Prinz, F. B.  
2024
- **Tunable Dirac semimetals with higher-order Fermi arcs in Kagome lattices  $\text{Pd}_3\text{Pb}_2\text{X}_2$  ( $\text{X} = \text{S}, \text{Se}$ )** *SCIENCE BULLETIN*  
Nie, S., Chen, J., Yue, C., Le, C., Yuan, D., Wang, Z., Zhang, W., Weng, H.  
2022; 67 (19): 1958-1961
- **Spontaneous Ferromagnetism Induced Topological Transition in  $\text{EuB}_6$ .** *Physical review letters*  
Liu, W. L., Zhang, X., Nie, S. M., Liu, Z. T., Sun, X. Y., Wang, H. Y., Ding, J. Y., Jiang, Q., Sun, L., Xue, F. H., Huang, Z., Su, H., Yang, et al  
2022; 129 (16): 166402
- **Magnetic Weyl Semimetal in  $\text{K}_2\text{Mn}_3(\text{AsO}_4)_3$  with the Minimum Number of Weyl Points.** *Physical review letters*  
Nie, S., Hashimoto, T., Prinz, F. B.  
2022; 128 (17): 176401
- **Multiple mobile excitons manifested as sidebands in quasi-one-dimensional metallic  $\text{TaSe}_3$ .** *Nature materials*  
Ma, J., Nie, S., Gui, X., Naamneh, M., Jandke, J., Xi, C., Zhang, J., Shang, T., Xiong, Y., Kapon, I., Kumar, N., Soh, Y., Gosalbez-Martinez, et al  
2022
- **Observation of topological edge states in the quantum spin Hall insulator  $\text{Ta}_2\text{Pd}_3\text{Te}_5$**  *PHYSICAL REVIEW B*  
Wang, X., Geng, D., Yan, D., Hu, W., Zhang, H., Yue, S., Sun, Z., Kumar, S., Schwier, E. F., Shimada, K., Cheng, P., Chen, L., Nie, et al  
2021; 104 (24)

- **Observation of electronic structure and electron-boson coupling in the low-dimensional superconductor Ta<sub>4</sub>Pd<sub>3</sub>Te<sub>16</sub>** *PHYSICAL REVIEW B*  
Yang, H. F., Liu, X. L., Nie, S. M., Shi, W. J., Huang, K., Zheng, H. J., Zhang, J., Li, Y. W., Liang, A. J., Wang, M. X., Yang, L. X., Guo, Y. F., Liu, et al  
2021; 104 (22)
- **Measurement of Superconductivity and Edge States in Topological Superconductor Candidate TaSe<sub>3</sub>** *CHINESE PHYSICS LETTERS*  
Liu, S., Nie, S., Qi, Y., Guo, Y., Yuan, H., Yang, L., Chen, Y., Wang, M., Liu, Z.  
2021; 38 (7)
- **Application of topological quantum chemistry in electrides** *PHYSICAL REVIEW B*  
Nie, S., Qian, Y., Gao, J., Fang, Z., Weng, H., Wang, Z.  
2021; 103 (20)
- **Time-Reversal Symmetry Breaking Driven Topological Phase Transition in EuB<sub>6</sub>** *PHYSICAL REVIEW X*  
Gao, S., Xu, S., Li, H., Yi, C., Nie, S., Rao, Z., Wang, H., Hu, Q., Chen, X., Fan, W., Huang, J., Huang, Y., Pryds, et al  
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Gao, J., Qian, Y., Nie, S., Fang, Z., Weng, H., Wang, Z.  
2021; 66 (7): 667-675
- **Discovery of [Formula: see text] rotation anomaly in topological crystalline insulator SrPb.** *Nature communications*  
Fan, W., Nie, S., Wang, C., Fu, B., Yi, C., Gao, S., Rao, Z., Yan, D., Ma, J., Shi, M., Huang, Y., Shi, Y., Wang, et al  
2021; 12 (1): 2052
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- **Quantum spin Hall effect in Ta<sub>2</sub>M<sub>3</sub>Te<sub>5</sub> (M = Pd, Ni)** *PHYSICAL REVIEW B*  
Guo, Z., Yan, D., Sheng, H., Nie, S., Shi, Y., Wang, Z.  
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- **Sixfold excitations in electrides** *PHYSICAL REVIEW RESEARCH*  
Nie, S., Bernevig, B., Wang, Z.  
2021; 3 (1)
- **Unconventional Transverse Transport above and below the Magnetic Transition Temperature in Weyl Semimetal EuCd<sub>2</sub>As<sub>2</sub>** *PHYSICAL REVIEW LETTERS*  
Xu, Y., Das, L., Ma, J. Z., Yi, C. J., Nie, S. M., Shi, Y. G., Tiwari, A., Tsirkin, S. S., Neupert, T., Medarde, M., Shi, M., Chang, J., Shang, et al  
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- **Observation and control of the weak topological insulator state in ZrTe<sub>5</sub>.** *Nature communications*  
Zhang, P., Noguchi, R., Kuroda, K., Lin, C., Kawaguchi, K., Yaji, K., Harasawa, A., Lippmaa, M., Nie, S., Weng, H., Kandyba, V., Giampietri, A., Barinov, et al  
2021; 12 (1): 406
- **Observation of Topological Electronic Structure in Quasi-1D Superconductor TaSe<sub>3</sub>** *MATTER*  
Chen, C., Liang, A., Liu, S., Nie, S., Huang, J., Wang, M., Li, Y., Pei, D., Yang, H., Zheng, H., Zhang, Y., Lu, D., Hashimoto, et al  
2020; 3 (6): 2055–65
- **Mapping Dirac fermions in the intrinsic antiferromagnetic topological insulators (MnBi<sub>2</sub>Te<sub>4</sub>)(Bi<sub>2</sub>Te<sub>3</sub>)(n) (n=0, 1)** *PHYSICAL REVIEW B*  
Liang, Z., Luo, A., Shi, M., Zhang, Q., Nie, S., Ying, J. J., He, J., Wu, T., Wang, Z., Xu, G., Wang, Z., Chen, X.  
2020; 102 (16)
- **Magnetic topological insulator MnBi<sub>6</sub>Te<sub>10</sub> with a zero-field ferromagnetic state and gapped Dirac surface states** *PHYSICAL REVIEW B*  
Tian, S., Gao, S., Nie, S., Qian, Y., Gong, C., Fu, Y., Li, H., Fan, W., Zhang, P., Kondo, T., Shin, S., Adell, J., Fedderwitz, et al  
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- **Weyl semimetals with S<sub>4</sub> symmetry** *PHYSICAL REVIEW B*

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- **Emergence of Nontrivial Low-Energy Dirac Fermions in Antiferromagnetic EuCd<sub>2</sub>As<sub>2</sub>.** *Advanced materials (Deerfield Beach, Fla.)*  
Ma, J. n., Wang, H. n., Nie, S. n., Yi, C. n., Xu, Y. n., Li, H. n., Jandke, J. n., Wulfhekel, W. n., Huang, Y. n., West, D. n., Richard, P. n., Chikina, A. n., Strocov, et al  
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- **Magnetic Semimetals and Quantized Anomalous Hall Effect in EuB<sub>6</sub>.** *Physical review letters*  
Nie, S. n., Sun, Y. n., Prinz, F. B., Wang, Z. n., Weng, H. n., Fang, Z. n., Dai, X. n.  
2020; 124 (7): 076403
- **Topological electronic states in HfRuP family superconductors** *NPJ COMPUTATIONAL MATERIALS*  
Qian, Y., Nie, S., Yi, C., Kong, L., Fang, C., Qian, T., Ding, H., Shi, Y., Wang, Z., Weng, H., Fang, Z.  
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- **Topological crystalline insulators with C-2 rotation anomaly** *PHYSICAL REVIEW RESEARCH*  
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- **Spin fluctuation induced Weyl semimetal state in the paramagnetic phase of EuCd<sub>2</sub>As<sub>2</sub>** *SCIENCE ADVANCES*  
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- **Topological phases in the TaSe<sub>3</sub> compound** *PHYSICAL REVIEW B*  
Nie, S., Xing, L., Jin, R., Xie, W., Wang, Z., Prinz, F. B.  
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- **Orthorhombic carbon oC<sub>24</sub>: A novel topological nodal line semimetal** *CARBON*  
Li, Z., Chen, J., Nie, S., Xu, L., Mizuseki, H., Weng, H., Wang, J.  
2018; 133: 39-43
- **Topological Nodal-Net Semimetal in a Graphene Network Structure** *PHYSICAL REVIEW LETTERS*  
Wang, J., Nie, S., Weng, H., Kawazoe, Y., Chen, C.  
2018; 120 (2): 026402
- **Topological semimetal in honeycomb lattice LnSI.** *Proceedings of the National Academy of Sciences of the United States of America*  
Nie, S., Xu, G., Prinz, F. B., Zhang, S. C.  
2017; 114 (40): 10596-10600
- **Electronic structure of SrSn<sub>2</sub>As<sub>2</sub> near the topological critical point** *SCIENTIFIC REPORTS*  
Rong, L., Ma, J., Nie, S., Lin, Z., Li, Z., Fu, B., Kong, L., Zhang, X., Huang, Y., Weng, H., Qian, T., Ding, H., Tai, et al  
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- **Electronic evidence of temperature-induced Lifshitz transition and topological nature in ZrTe<sub>5</sub>** *NATURE COMMUNICATIONS*  
Zhang, Y., Wang, C., Yu, L., Liu, G., Liang, A., Huang, J., Nie, S., Sun, X., Zhang, Y., Shen, B., Liu, J., Weng, H., Zhao, et al  
2017; 8: 15512
- **Experimental evidence of hourglass fermion in the candidate nonsymmorphic topological insulator KHgSb** *SCIENCE ADVANCES*  
Ma, J., Yi, C., Lv, B., Wang, Z., Nie, S., Wang, L., Kong, L., Huang, Y., Richard, P., Zhang, P., Yaji, K., Kuroda, K., Shin, et al  
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- **Superconductivity in HfTe<sub>5</sub> across weak to strong topological insulator transition induced via pressures** *SCIENTIFIC REPORTS*  
Liu, Y., Long, Y. J., Zhao, L. X., Nie, S. M., Zhang, S. J., Weng, Y. X., Jin, M. L., Li, W. M., Liu, Q. Q., Long, Y. W., Yu, R. C., Gu, C. Z., Sun, et al  
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- **Observation of Fermi arc and its connection with bulk states in the candidate type-II Weyl semimetal WTe<sub>2</sub>** *PHYSICAL REVIEW B*  
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- **Angle-resolved photoemission observation of Mn-pnictide hybridization and negligible band structure renormalization in BaMn<sub>2</sub>As<sub>2</sub> and BaMn<sub>2</sub>Sb<sub>2</sub>** *PHYSICAL REVIEW B*  
Zhang, W., Richard, P., van Roekeghem, A., Nie, S., Xu, N., Zhang, P., Miao, H., Wu, S., Yin, J., Fu, B. B., Kong, L., Qian, T., Wang, et al  
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- **Spontaneous Formation of a Superconductor-Topological Insulator-Normal Metal Layered Heterostructure** *ADVANCED MATERIALS*  
Wang, Y., Wu, X., Wang, Y., Shao, Y., Lei, T., Wang, J., Zhu, S., Guo, H., Zhao, L., Chen, G., Nie, S., Weng, H., Ibrahim, et al  
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- **Body-Centered Orthorhombic C-16: A Novel Topological Node-Line Semimetal** *PHYSICAL REVIEW LETTERS*  
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2016; 116 (19): 195501
- **Evidence for Topological Edge States in a Large Energy Gap near the Step Edges on the Surface of ZrTe<sub>5</sub>** *PHYSICAL REVIEW X*  
Wu, R., Ma, J., Nie, S., Zhao, L., Huang, X., Yin, J., Fu, B., Richard, P., Chen, G., Fang, Z., Dai, X., Weng, H., Qian, et al  
2016; 6 (2)
- **Band gap anomaly and topological properties in lead chalcogenides** *CHINESE PHYSICS B*  
Nie, S., Xu, X., Xu, G., Fang, Z.  
2016; 25 (3)
- **Two-dimensional oxide topological insulator with iron-pnictide superconductor LiFeAs structure** *PHYSICAL REVIEW B*  
Xu, Q., Song, Z., Nie, S., Weng, H., Fang, Z., Dai, X.  
2015; 92 (20)
- **Observation of Fermi-Arc Spin Texture in TaAs** *PHYSICAL REVIEW LETTERS*  
Lv, B. Q., Muff, S., Qian, T., Song, Z. D., Nie, S. M., Xu, N., Richard, P., Matt, C. E., Plumb, N. C., Zhao, L. X., Chen, G. F., Fang, Z., Dai, et al  
2015; 115 (21): 217601
- **Quantum spin Hall effect in two-dimensional transition-metal dichalcogenide haeckelites** *PHYSICAL REVIEW B*  
Nie, S. M., Song, Z., Weng, H., Fang, Z.  
2015; 91 (23)
- **Direct spectroscopic evidence for completely filled Cu 3d shell in BaCu<sub>2</sub>As<sub>2</sub> and alpha-BaCu<sub>2</sub>Sb<sub>2</sub>** *PHYSICAL REVIEW B*  
Wu, S. F., Richard, P., van Roekeghem, A., Nie, S. M., Miao, H., Xu, N., Qian, T., Saparov, B., Fang, Z., Biermann, S., Sefat, A. S., Ding, H.  
2015; 91 (23)
- **Raman scattering investigation of the electron-phonon coupling in superconducting Nd(O,F)BiS<sub>2</sub>** *PHYSICAL REVIEW B*  
Wu, S. F., Richard, P., Wang, X. B., Lian, C. S., Nie, S. M., Wang, J. T., Wang, N. L., Ding, H.  
2014; 90 (5)
- **Observation of anomalous temperature dependence of spectrum on small Fermi surfaces in a BiS<sub>2</sub>-based superconductor** *PHYSICAL REVIEW B*  
Zeng, L. K., Wang, X. B., Ma, J., Richard, P., Nie, S. M., Weng, H. M., Wang, N. L., Wang, Z., Qian, T., Ding, H.  
2014; 90 (5)
- **Optical spectroscopy study of Nd(O,F)BiS<sub>2</sub> single crystals** *PHYSICAL REVIEW B*  
Wang, X. B., Nie, S. M., Wang, H. P., Zheng, P., Wang, P., Dong, T., Weng, H. M., Wang, N. L.  
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