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## 钱冬 特别研究员



钱冬，特别研究员。1998年毕业于复旦大学物理系，获理学学士学位。2003年于复旦大学物理系获博士学位，入选全国优秀博士学位论文。2003到2009年在普林斯顿大学和加州劳伦斯伯克利国家实验室先进光源中心从事博士后和研究员工作。2009年受聘于上海交通大学物理系任特别研究员。主要研究方向为低维体系中的新颖量子现象，强关联体系中的电子结构，磁性材料和人工结构等。今年来，和合作者一起在实验上发现了第一种强拓扑绝缘体。发表学术论文40余篇，其中包括Nature (3)，Science (1)，Nature physics (1)，Phys. Rev. Lett. (12)等一流杂志。

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主要研究兴趣：

低维体系中的新颖量子现象，拓扑绝缘体和自旋相关效应，强关联体系和新颖超导体中的电子结构，磁性材料和人工结构，低维体系输运性质，同步辐射等

代表性论文：

1. Spin Density Wave in Ultrathin Fe Films on Cu(100)

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3. High-resolution soft x-ray emission spectrograph at advanced light source

Yi-De Chuang, J. Pepper, W. McKinney, Z. Hussain, E. Gullikson, P. Batson, D. Qian, M.Z. Hasan

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4. Quasiparticle dynamics in the vicinity of metal-insulator phase transition in  $\text{Na}_x\text{CoO}_2$

D. Qian, L. Wray, D. Hsieh, D. Wu, J.L. Luo, N.L. Wang, A. Kuprin, A. Fedorov, R.J. Cava, L. Viciu, and M.Z. Hasan

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7. Emergence of Fermi Pockets in a New Excitonic Charge-Density-Wave Melted Superconductor

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8. Dispersive collective charge modes in an incommensurately modulated cuprate Mott insulator

L. Wray, D. Qian, D. Hsieh, Y. Xia, H. Eisaki, M.Z. Hasan

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9. A topological Dirac insulator in a quantum spin Hall phase

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10. Comment on "Low-Lying States and Hidden Kinematic Collective Charge Instabilities in Parent Cobaltate Superconductors" - Qian et al. reply

D. Qian, D. Hsieh, L. Wray, Y.-D. Chuang, A. Fedorov, L. Viciu, R. J. Cava, and M. Z. Hasan

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11. Momentum dependence of superconducting gap, strong-coupling dispersion kink, and tightly bound Cooper pairs in the high-Tc (Sr,Ba) $_{1-x}$ (K,Na) $_x$ Fe $_2$ As $_2$  superconductors

L. Wray, D. Qian, D. Hsieh, Y. Xia, L. Li, J. G. Checkelsky, A. Pasupathy, K. K. Gomes, C. V. Parker, A. V. Fedorov, G. F. Chen, J. L. Luo, A. Yazdani, N. P. Ong, N. L. Wang, and M. Z. Hasan

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12. Observation of Unconventional Quantum Spin Textures in Topological Insulators

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13. Observation of a large-gap topological-insulator class with a single Dirac cone on the surface

Y. Xia, D. Qian, D. Hsieh, L. Wray, A. Pal, H. Lin, A. Bansil, D. Grauer, Y.S. Hor, R.J. Cava, M.Z. Hasan

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14. Fermi Surface Topology and Low-Lying Quasiparticle Dynamics of Parent Fe $_{1+x}$ Te/Se Superconductor

Y. Xia, D. Qian, L. Wray, D. Hsieh, G. F. Chen, J. L. Luo, N. L. Wang, and M. Z. Hasan

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15. A tunable topological insulator in the spin helical Dirac transport regime

D. Hsieh, Y. Xia, D. Qian, L. Wray, J.H. Dil, F. Meier, J. Osterwalder, L. Patthey, J.G. Checkelsky, N.P. Ong, A.V. Fedorov, H. Lin, A. Bansil, D. Grauer, Y.S. Hor, R.J. Cava, M.Z. Hasan

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