Wanzheng Hu

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Education

2010	**Doctor of Science, Condensed Matter Physics** Advisor: Prof. N. L. Wang Institute of Physics, Chinese Academy of Sciences, Beijing, China
2005	**Bachelor of Science** Advisor: Prof. B. H. Hou and Prof. N. L. Wang Beijing University of Technology, Beijing, China

Employment History

2017.09 -current	**Assistant Professor** Department of Physics, Boston University Division of Materials Science and Engineering, Boston University
2010.07 -2017.08	**Research Scientist** (2012.08-2017.08) **Postdoc** (2010.07-2012.07) Quantum Condensed Matter Dynamics Group (Prof. Andrea Cavalleri), Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany
2016.03 -2016.05	**Visiting scholar** State Key Laboratory of Low-Dimensional Quantum Physics (Prof. Qi-Kun Xue), Tsinghua University, Beijing, China

Honors and Awards

2020	**Department of Energy Early Career Award** **National Science Foundation CAREER Award**
2017	**European Research Council Starting Grant 2017,** Light2D (No.757322), €1.79 million (The highest research funding for individuals in Europe)
2010	**Special Prize of President Scholarship for Postgraduate Students**, Chinese Academy of Sciences (CAS) (The highest prize granted for 20 out of >4700 PhD graduates in CAS)
2009	**Excellent Students Honor,** CAS **President's Scholarship,** Institute of Physics, CAS **Travelling Award for Students,** the 9th International Conference on Materials and Mechanisms of Superconductivity (M^2S), Tokyo, Japan **Best Paper Award for Students,** the 12th Conference of Low Temperature Physics, China
2008	**President's Scholarship,** Institute of Physics, CAS
2005	**Excellent Graduate Award,** Beijing University of Technology

2001-2005 **Beijing University of Technology Scholarship**

Invited Talks

Conference Presentations

2018.08 International Conference on materials and Mechanisms of Superconductivity and High Temperature Superconductors (M^2S), China
2016.05 International Conference on Low-Energy Electrodynamics in Solids (LEES), Japan
2015.07 Superconductivity on the Verge, Leiden, the Netherlands
2014.10 Asia-Pacific Workshop on Strongly Correlated System 2014, Beijing, China
2014.09 Chinese Physics Society Meeting 2014, Harbin, China
2013.10 Ultrafast Dynamics of Correlated Materials, Miramare, Trieste, Italy

Symposiums and Seminars

2019.02 Materials Science and Engineering Colloquium, Boston University
2018.06 Zhongguancun Forum, Institute of Physics, Chinese Academy of Sciences, Beijing, China
2016.05 Fudan University, Shanghai, China
Nanjing University, Nanjing, China
2016.04 Tsinghua University, Beijing, China
Peking University, Beijing, China
2014.10 Tsinghua University, Beijing, China
2014.09 Shanghai Jiao Tong University, Shanghai, China
2014.01 Institute of Physics, Chinese Academy of Sciences, Beijing, China
2013.04 Microsymposium, Max Plank Institute for Solid State Research, Stuttgart, Germany

Teaching

Courses Taught

2019 PY212, General Physics 2 (Electricity and Magnetism)
2018 PY252, Principle of Physics 2 (Electricity and Magnetism for physics majors)
2017 PY251, Principle of Physics 1 (Mechanics and Thermodynamics for physics majors)

External Service

Reviewer Reviewer for European Research and Innovation program Horizon 2020 (European Research Council, Marie Skłodowska-Curie actions)
Reviewer for the Netherlands Organisation for Scientific Research (NWO) grant
Referee for Nature Communications, Physics Review Letters and Physics Review B

Talk show 90-Year Celebration of Institute of Physics, Chinese Academy of Science, June 2018

Organizer Co-organizer (with Kenneth Burch, G. Lawrence Carr, Natalia Perkins, David Tanner, Nuh Gedik, N. Peter Armitage) of International Conference on Low-Energy Electrodynamics in Solids (LEES) 2020.

Publications

34 peer-reviewed publications (13 in Phys. Rev. Lett., 1 in Nature Materials)
h-index = 24, >3500 citations (excluding self-citations)
ResearcherID: K-1171-2016 (http://www.researcherid.com/rid/K-1171-2016)

Selected publications

1. W. Hu*, S. Kaiser*, D. Nicoletti*, C. R. Hunt*, I. Gierz, M. C. Hoffmann, M. Le Tacon, T. Loew, B. Keimer, and A. Cavalleri (*equal contribution)
Optically enhanced coherent transport in $YBa_2Cu_3O_{6.5}$ by ultrafast redistribution of interlayer coupling **Nature Materials** 13,705(2014)
- News & Views by N. Peter Armitage, Nature Materials 13, 665 (2014).

2. A. D. Caviglia, R. Scherwitzl, P. Popovich, W. Hu, H. Bromberger, R. Singla, M. Mitrano, M. C. Hoffmann, S. Kaiser, P. Zubko, S. Gariglio, J.-M. Triscone, M. Först, and A. Cavalleri
Ultrafast Strain Engineering in Complex Oxide Heterostructures
Phys. Rev. Lett. 108, 136801(2012)
- APS-Viewpoint in Physics by Maria J. Calderon: Physics 5, 37 (2012);
Research Highlights by Joerg Heber, Nature Materials 11, 358 (2012).

3. W. Z. Hu, Q. M. Zhang, N. L. Wang
Optical and Raman spectroscopy studies on Fe-based superconductors
Physica C 469, 545(2009)
- The first invited optical review on Fe-based superconductors.

4. W. Z. Hu, J. Dong, G. Li, Z. Li, P. Zheng, G. F. Chen, J. L. Luo, and N. L. Wang
Origin of the Spin Density Wave Instability in AFe_2As_2 (A=Ba,Sr) as Revealed by Optical Spectroscopy
Phys. Rev. Lett. 101, 257005 (2008)
- The first optical spectroscopic study on single crystalline Fe-based superconductors.

5. G. F. Chen, Z. Li, D. Wu, G. Li, W. Z. Hu, J. Dong, P. Zheng, J. L. Luo, and N. L. Wang
Superconductivity at 41 K and its competition with spin-density-wave instability in layered $CeO_{1-x}F_xFeAs$ **Phys. Rev. Lett.** 100, 247002 (2008)
- One of the first reports of the above-40 K-superconductivity in Fe-based superconductors.

Full publication list

Ultrafast light control of superconductors and oxide interfaces, ultrafast optics

1. J. Okamoto, W. Hu, A. Cavalleri, L. Mathey
Transiently enhanced interlayer tunneling in optically driven high-Tc superconductors
Phys. Rev. B 96, 144505 (2017)
2. W. Hu, D. Nicoletti, A. V. Boris, B. Keimer and A. Cavalleri
Optical melting of the transverse Josephson plasmon: a comparison between bilayer and trilayer cuprates

Phys. Rev. B 95, 104508 (2017)

3. M. Först, K.R. Beyerlein, R. Mankowsky, W. Hu, G. Mattoni, S. Catalano, M. Gibert, O. Yefanov, J.N. Clark, A. Frano, J.M. Glownia, M. Chollet, H. Lemke, B. Moser, S.P. Collins, S.S. Dhesi, A.D. Caviglia, J.-M. Triscone, and A. Cavalleri
   Multiple supersonic phase fronts launched at a complex-oxide hetero-interface
   Phys. Rev. Lett. 118, 027401 (2017)
4. W. Hu, S. Catalano, M. Gibert, J.-M. Triscone, and A. Cavalleri
   Broadband terahertz spectroscopy of the insulator-metal transition driven by coherent lattice deformation at the $SmNiO_3/LaAlO_3$ interface
   Phys. Rev. B 93, 161107 (R) (2016)
5. W. Hu*, S. Kaiser*, D. Nicoletti*, C. R. Hunt*, I. Gierz, M. C. Hoffmann, M. Le Tacon, T. Loew, B. Keimer, and A. Cavalleri (*equal contribution)

   Optically enhanced coherent transport in $YBa_2Cu_3O_{6.5}$ by ultrafast redistribution of interlayer coupling **Nature Materials** 13,705(2014)

6. S. Kaiser, C. R. Hunt, D. Nicoletti, W. Hu, I. Gierz, H. Y. Liu, M. Le Tacon, T. Loew, D. Haug, B. Keimer, and A. Cavalleri
   Optically induced coherent transport far above T_c in underdoped $YBa_2Cu_3O_{6+\delta}$
   Phys. Rev. B 89, 184516 (2014)
7. A. D. Caviglia, R. Scherwitzl, P. Popovich, W. Hu, H. Bromberger, R. Singla, M. Mitrano, M. C. Hoffmann, S. Kaiser, P. Zubko, S. Gariglio, J.-M. Triscone, M. Först, and A. Cavalleri
   Ultrafast Strain Engineering in Complex Oxide Heterostructures
   Phys. Rev. Lett. 108, 136801(2012)
8. A. Willner, F. Tavella, M. Yeung, T. Dzelzainis, C. Kamperidis, M. Bakarezos, D. Adams, M. Schulz, R. Riedel, M. C. Hoffmann, W. Hu, J. Rossbach, M. Drescher, N. A. Papadogiannis, M. Tatarakis, B. Dromey, and M. Zepf
   Coherent Control of High Harmonic Generation via Dual-Gas Multijet Arrays
   Phys. Rev. Lett. 107, 175002 (2011)

Steady-state optical spectroscopy: iron-based superconductors, transition metal dichalcogenides

1. N. L. Wang, W. Z. Hu, Z. G. Chen, R. H. Yuan, G. Li, G. F. Chen and T. Xiang
   High energy pseudogap and its evolution with doping in Fe-based superconductors as revealed by optical spectroscopy
   J. Phys.: Condens. Matter 24, 294202 (2012)
2. Z. G. Chen, W. Z. Hu, N. L. Wang
   Different nature of instabilities in $BaFe_2As_2$ and $BaNi_2As_2$ as revealed by optical spectroscopy
   Physica Status Solidi B-Basic Solid State Physics, 247, 495 (2010)
3. Z. G. Chen, T. Dong, R. H. Ruan, B. F. Hu, B. Cheng, W. Z. Hu, P. Zheng, Z. Fang, X. Dai, and N. L. Wang
   Measurement of the c -Axis Optical Reflectance of AFe_2As_2 (A=Ba, Sr) Single Crystals:

Evidence of Different Mechanisms for the Formation of Two Energy Gaps
Phys. Rev. Lett. 105, 097003 (2010)

4. W. Z. Hu, Q. M. Zhang, N. L. Wang
Optical and Raman spectroscopy studies on Fe-based superconductors
Physica C 469, 545(2009)
5. Wan-zheng Hu, Jing Dong, Gang Li, Zheng Li, Ping Zheng, Gen-fu Chen, Jian-lin Luo, Nan-lin Wang
Optical properties of FeAs-based parent compound: A comparative study for polycrystalline $EuFe_2As_2$ and LaFeAsO
Front. Phys. China 4, 459 (2009)
6. W. Z. Hu, G. Li, P. Zheng, G. F. Chen, J. L. Luo, and N. L. Wang
Optical study of the spin-density-wave properties of single-crystalline $Na_{1-\delta}FeAs$
Phys. Rev. B 80, 100507(R) (2009)
7. Z. G. Chen, G. Xu, W. Z. Hu, X. D. Zhang, P. Zheng, G. F. Chen, J. L. Luo, Z. Fang, and N. L. Wang
Origin of the structural phase transition in $BaNi_2As_2$ at 130 K: A combined study of optical spectroscopy and band structure calculations
Phys. Rev. B 80, 094506 (2009)
8. J. Dong, H. J. Zhang, G. Xu, Z. Li, G. Li, W. Z. Hu, D. Wu, G. F. Chen, X. Dai, J. L. Luo, Z. Fang and N. L. Wang
Competing orders and spin-density-wave instability in $La(O_{1-x}F_x)FeAs$
Europhys. Lett 83, 27006 (2008)
9. Chen Gen-Fu, Li Zheng, Wu Dan, Dong Jing, Li Gang, Hu Wan-Zheng, Zheng Ping, Luo Jian-Lin and Wang Nan-Lin
Element Substitution Effect in Transition Metal Oxypnictide Re(O1-xFx)TAs (Re = rare earth, T = transition metal)
Chinese Phys. Lett. 25, 2235 (2008)
10. W. Z. Hu, G. T. Wang, Rongwei Hu, C. Petrovic, E. Morosan, R. J. Cava, Z. Fang, and N. L. Wang
Evidence for a band broadening across the ferromagnetic transition of $Cr_{1/3}NbSe_2$
Phys. Rev. B 78, 085120 (2008)
11. W. Z. Hu, J. Dong, G. Li, Z. Li, P. Zheng, G. F. Chen, J. L. Luo, and N. L. Wang
Origin of the Spin Density Wave Instability in AFe_2As_2 (A=Ba,Sr) as Revealed by Optical Spectroscopy
Phys. Rev. Lett. 101, 257005 (2008)
12. G. Li, W. Z. Hu, J. Dong, Z. Li, P. Zheng, G. F. Chen, J. L. Luo, and N. L. Wang
Probing the superconducting energy gap from infrared spectroscopy on a $Ba_{0.6}K_{0.4}Fe_2As_2$ single crystal with T_c=37 K
Phys. Rev. Lett. 101, 107004 (2008)
13. Zheng Li, Gengfu Chen, Jing Dong, Gang Li, Wanzheng Hu, Dan Wu, Shaokui Su, Ping Zheng, Tao Xiang, Nanlin Wang, and Jianlin Luo

Strong-coupling superconductivity in the nickel-based oxypnictide $LaNiAsO_{1-x}F_x$
Phys. Rev. B 78, 060504(R) (2008)

14. G. Li, W. Z. Hu, J. Dong, D. Qian, D. Hsieh, M. Z. Hasan, E. Morosan, R. J. Cava, and N. L. Wang
Anomalous Metallic State of $Cu_{0.07}TiSe_2$: An Optical Spectroscopy Study
Phys. Rev. Lett. 99, 167002 (2007)
15. W. Z. Hu, G. Li, J. Yan, H. H. Wen, G. Wu, X. H. Chen, and N. L. Wang
Optical study of the charge-density-wave mechanism in $2H-TaS_2$ and $NaxTaS_2$
Phys. Rev. B 76, 045103 (2007)
16. G. Li, W. Z. Hu, D. Qian, D. Hsieh, M. Z. Hasan, E. Morosan, R. J. Cava, and N. L. Wang
Semimetal-to-Semimetal Charge Density Wave Transition in $1T-TiSe_2$
Phys. Rev. Lett. 99, 027404 (2007)

Sample fabrication: iron-based superconductors

1. Clarina de la Cruz, W. Z. Hu, Shiliang Li, Q. Huang, J. W. Lynn, M. A. Green, G. F. Chen, N. L. Wang, H. A. Mook, Qimiao Si, and Pengcheng Dai
Lattice Distortion and Magnetic Quantum Phase Transition in $CeFeAs_{1-x}P_xO$
Phys. Rev. Lett. 104, 017204 (2010)
2. G. F. Chen, Z. G. Chen, J. Dong, W. Z. Hu, G. Li, X. D. Zhang, P. Zheng, J. L. Luo, and N. L. Wang
Electronic properties of single-crystalline $Fe_{1.05}Te$ and $Fe_{1.03}Se_{0.30}Te_{0.70}$
Phys. Rev. B 79, 140509(R) (2009)
3. G. F. Chen, W. Z. Hu, J. L. Luo, and N. L. Wang
Multiple Phase Transitions in Single-Crystalline $Na_{1-\delta}FeAs$
Phys. Rev. Lett. 102, 227004 (2009)
4. J. P. Carlo, Y. J. Uemura, T. Goko, G. J. MacDougall, J. A. Rodriguez, W. Yu, G. M. Luke, Pengcheng Dai, N. Shannon, S. Miyasaka, S. Suzuki, S. Tajima, G. F. Chen, W. Z. Hu, J. L. Luo, and N. L. Wang
Static Magnetic Order and Superfluid Density of RFeAs(O,F) (R=La,Nd,Ce) and LaFePO Studied by Muon Spin Relaxation: Unusual Similarities with the Behavior of Cuprate Superconductors
Phys. Rev. Lett. 102, 087001 (2009)
5. T. Goko, A. A. Aczel, E. Baggio-Saitovitch, S. L. Bud'ko, P. C. Canfield, J. P. Carlo, G. F. Chen, Pengcheng Dai, A. C. Hamann, W. Z. Hu, H. Kageyama, G. M. Luke, J. L. Luo, B. Nachumi, N. Ni, D. Reznik, D. R. Sanchez-Candela, A. T. Savici, K. J. Sikes, N. L. Wang, C. R. Wiebe, T. J. Williams, T. Yamamoto, W. Yu, and Y. J. Uemura
Superconducting state coexisting with a phase-separated static magnetic order in $(Ba,K)Fe_2As_2$, $(Sr,Na)Fe_2As_2$, and $CaFe_2As_2$
Phys. Rev. B 80, 024508 (2009)
6. A. A. Aczel, E. Baggio-Saitovitch, S. L. Budko, P. C. Canfield, J. P. Carlo, G. F. Chen, Pengcheng Dai, T. Goko, W. Z. Hu, G. M. Luke, J. L. Luo, N. Ni, D. R. Sanchez-Candela, F.

F. Tafti, N. L. Wang, T. J. Williams, W. Yu, and Y. J. Uemura
Muon-spin-relaxation studies of magnetic order and superfluid density in antiferromagnetic NdFeAsO, $BaFe_2As_2$, and superconducting $Ba_{1-x}K_xFe_2As_2$
Phys. Rev. B 78, 214503 (2008)

7. G. F. Chen, Z. Li, G. Li, J. Zhou, D. Wu, J. Dong, W. Z. Hu, P. Zheng, Z. J. Chen, H. Q. Yuan, J. Singleton, J. L. Luo, and N. L. Wang
Superconducting Properties of the Fe-Based Layered Superconductor $LaFeAsO_{0.9}F_{0.1-\delta}$
Phys. Rev. Lett. 101, 057007 (2008)
8. G. F. Chen, Z. Li, D. Wu, G. Li, W. Z. Hu, J. Dong, P. Zheng, J. L. Luo, and N. L. Wang
Superconductivity at 41 K and its competition with spin-density-wave instability in layered $CeO_{1-x}F_xFeAs$ **Phys. Rev. Lett.** 100, 247002 (2008)
9. Chen Gen-Fu, Li Zheng, Li Gang, Hu Wan-Zheng, Dong Jing, Zhou Jun, Zhang Xiao-Dong, Zheng Ping, Wang Nan-Lin and Luo Jian-Lin
Superconductivity in Hole-Doped $(Sr_{1-x}K_x)Fe_2As_2$
Chinese Phys. Lett. 25, 3403 (2008)
10. G. F. Chen, Z. Li, J. Dong, G. Li, W. Z. Hu, X. D. Zhang, X. H. Song, P. Zheng, N. L. Wang, and J. L. Luo
Transport and anisotropy in single-crystalline $SrFe_2As_2$ and $A_{0.6}K_{0.4}Fe_2As_2$ (A=Sr, Ba) superconductors
Phys. Rev. B 78, 224512 (2008)