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
Photonics Center, 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

Honors and Awards

2020 **DOE Early Career Award**
NSF CAREER Award

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)

Funding Awarded

2020 **DOE Early Career Award,** DE-SC0021305, $929,769
Bidirectional Manipulation of Phase Transitions by Laser Excitation of Optical Phonons
NSF CAREER Award, 1944957, $630,753
CAREER: Coherent Phonon Control in Iron-Based Superconductors

2017 **European Research Council Starting Grant 2017,** No.757322, € 1,786,550
(The highest research funding for individuals in Europe)
Dynamical materials control in low dimensions (Light2D)

Invited Talks

Invited Conference Presentations

2025.07 **Driven Quantum Systems** conference, Berlin, Germany

2025.03 **APS Global Physics Summit** (joint March Meeting and April Meeting), Anaheim,

California
2024.09 **XII Ultrafast Dynamics & Metastability and Ultrafast Bandgap Photonics,** Tucson, Arizona
2024.09 **SSRL/LCLS Users' Meeting**, workshop "*Time-resolved evolution of collective excitations in quantum materials*"
2024.07 **Telluride Workshop** "*Competing Interactions and Colossal Responses in Transition Metal Oxides and Related Compounds*", Telluride, Colorado
2024.06 **XI Ultrafast Dynamics and Ultrafast Bandgap Photonics Symposium**, Crete, Greece
2024.05 **Conference on Lasers and Electro-Optics (CLEO)**, Charlotte, North Carolina
2023.06 **SPICE-Workshop** "*Non-equilibrium Quantum Materials Design"*, Ingelheim, Germany
2023.06 **X Ultrafast Dynamics and Ultrafast Bandgap Photonics Symposium,** Crete, Greece
2023.04 **Materials Research Society (MRS) Spring Meeting**, California
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 **Lorentz workshop** *"Superconductivity on the Verge"*, Leiden, the Netherlands
2014.10 **Asia-Pacific Workshop on Strongly Correlated System,** Beijing, China
2014.09 **Chinese Physics Society Meeting**, Harbin, China
2013.10 **Ultrafast Dynamics of Correlated Materials Conference,** Miramare, Trieste, Italy

Symposiums and Seminars

2024.02 Photonics Center Lunch & Learn, Boston University
2022.09 Seminar, Rutgers University
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

Graduate level	PY543 **Introduction to Solid State Physics**, Spring 2021-2025
Undergraduate level	PY313 **Modern Physics**, Fall 2023, 2024
	PY212 **General Physics 2**, Fall 2019-2022

PY252 **Principle of Physics 2,** Spring 2018
PY251 **Principle of Physics 1**, Fall 2017

Professional service

Service in BU Physics Department

Committee — **New Initiatives and Search Committee** 2023-2024, 2024-2025
Graduate admissions 2017-2020, 2021-2023
HEE CMS Search Committee 2017-2018
Physics Colloquium Committee 2024-2025
CMT/CME Seminar Committee 2017- to date
Outreach & Recruitment 2017-2020
Websites, Social Media and Marketing Committee 2024-2025

PhD defense committee — **Jacob Warshauer** Departmental Seminar and PhD Defense 2025, **Ryan Flynn** Advancement to Candidacy Exam (ACE) 2024, **So Young Joen** Preliminary Oral Exam (POE) 2024, **Daniel Bustamante** POE and Departmental Seminar 2024, **Matteo Bellitti** PhD Defense 2023, **Jacob Warshauer** POE 2023, **Yifeng Cao** POE (chair) 2021, **Matteo Bellitti** POE and Departmental Seminar 2021, **Bowen Zhao** Departmental Seminar and PhD Defense 2021, **Kai-Hsin Wu** POE 2021 **Samuel Kalish** PhD Defense 2019, **Samuel Kalish** Departmental Seminar 2018

Service beyond Physics Department at Boston University

Committee — **Graduate Research in the United States Fellowship (GRUF) Committee** 2024

External service

Reviewer — Reviewer for **the Gordon and Betty Moore Foundation**.
Reviewer for **DOE** and **NSF** research proposals.
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, Physics Review B and Nanophotonics.

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

Organizer — Member of **the CLEO Fundamental Science Committee** for the 2025 CLEO Technical Program Committee
Co-organizer (with Dominik Juraschek and Michael Fechner) of **APS March Meeting DMP focus session** "Light-induced structural control of electronic phases", 2022.
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) 2021**.

Advisees

Postdoc	**Deepankar Sri Gyan** 2024.11-current
Graduate students	**Jacob Warshauer** (2019). Planned graduation: Spring 2025. **Daniel Bustamante** (2021). Planned graduation: Fall 2025. **Huyongqing (Sunny) Chen** (2022).
Undergraduate students	**Salvatore Cordova** (2023.07-current) Boston University Undergraduate Research Opportunities Program (UROP) Student Research Award, Summer 2024 **Thachachanok (Pan) Menasuta** (2020.01-2020.09) now at Tufts University. Boston University Undergraduate Research Opportunities Program (UROP) Student Research Award, Summer 2020
High school students	**Shayna Deltano** (Summer 2019) now at University of Massachusetts Amherst. **Prateek Anand** (Summer 2019) now at UCLA. **Danielle Berdichevsky** (Summer 2022) now at Northeastern University. **Ishir Garg** (Summer 2022) now at UC Berkeley. **Zoe Fulton** (Summer 2023) now at University of Chicago. **Selina Chen** (Summer 2024) **Ananya Bezbaruah** (Summer 2024)

Publications

h-index = 28, >6700 citations (excluding self-citations). ORCID: 0000-0002-0926-0760

Publications, pre-prints and manuscripts since joining BU

1. Jacob A. Warshauer, Daniel Alejandro Bustamante Lopez, Qingxin Dong, Genfu Chen, Wanzheng Hu
Transient gap generation in $BaFe_2As_2$ driven by coherent lattice vibrations
PNAS Nexus 2, pgad164 (2023).

2. Daniel A. Bustamante Lopez*, Dominik M. Juraschek*, Michael Fechner, Xianghan Xu, Sang-Wook Cheong, and Wanzheng Hu (*equal contribution)
Ultrafast simultaneous manipulation of multiple ferroic orders through nonlinear phonon excitation
arXiv: 2305.08250
npj Quantum Materials accepted.

3. Daniel A. Bustamante Lopez, Wanzheng Hu, and Dominik M. Juraschek
Electro-phononic and magneto-phononic frequency conversion
arXiv:2404.19436.

4. Xiaoran Liu, Jong-Woo Kim, Yao Wang, Michael Terilli, Xun Jia, Mikhail Kareev, Shiyu Peng, Fangdi Wen, Tsung-Chi Wu, Huyongqing Chen, Wanzheng Hu, Mary H. Upton, Jungho Kim, Yongseong Choi, Daniel Haskel, Hongming Weng, Philip J. Ryan, Yue Cao, Yang Qi, Jiandong Guo, Jak Chakhalian

Chiral Spin-Liquid-Like State in Pyrochlore Iridate Thin Films
Nature Communications 15, 10348 (2024).

5. Jacob A. Warshauer, Daniel Alejandro Bustamante Lopez, Qishuo Tan, Huyongqing Chen, Jing Tang, Xi Ling, and Wanzheng Hu
Long-lived gapped state in resonantly driven excitonic antiferromagnet
Phys. Rev. Lett. 134, 016901 (2025).

6. Michael Terilli, Xun Jia, Xiaoran Liu, Pontus Laurell, Ana-Marija Nedić, Yueqing Chang, Tsung-Chi Wu, Huyongqing Chen, Hongze Li, Mary H. Upton, Jungho Kim, Jong-Woo Kim, Philip J. Ryan, Christie Nelson, Jianshi Zhou, Mikhail Kareev, Wanzheng Hu, Jedediah H. Pixley, Gregory A. Fiete, Yue Cao, and Jak Chakhalian
Spectrally sharp magnetic excitations above the critical temperature in a frustrated Weyl semimetal
Nature Communications (accepted).

7. Jacob A. Warshauer, Huyongqing Chen, Qishuo Tan, Jing Tang, Xi Ling, and Wanzheng Hu
Characteristic exciton energy scales in antiferromagnetic $NiPS_3$
Under review.

Selected publications prior to joining Boston University
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-}

$_xF_xFeAs$
Phys. Rev. Lett. 100, 247002 (2008).
- One of the first reports of the above-40 K-superconductivity in Fe-based superconductors.