XINGYUE HAN

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EDUCATION

Nanjing University **Nanjing, China**

Bachelor of Science in Physics *Sep.2015-Jun.2019 (expected)*

- The National Basic Discipline Elite Program of Physics*
- **GPA:** 4.46/5.0; **Compulsory courses' GPA:** 4.51/5.0; **Ranking:** 13/144 (**top 10%**)

(*The Elite Program selects 30 students with outstanding academic performances out of 200 students in each grade.)

University of Pennsylvania **Philadelphia, US**

Visiting student *Nov.2019-May.2019 (expected)*

RESEARCH EXPERIENCE

Wu lab, University of Pennsylvania

➢ **Topic:** ***Berry curvature in magnetic Weyl semimetals using Terahertz time-domain spectroscopy (TTDS)***

Undergraduate Research Assistant, Advisor: Prof. Liang Wu *Nov.2018-Now*

- Built a THz spectrometer that emits and probes Terahertz signals. By measuring the sample transmission, the conductivity function of the sample can be extracted.
- Measured the second harmonic generation of ZnTe and GaP crystal.
- The first THz emitter I used is ZnTe which generates frequencies in a range of 0~4 THz. It is the frequency difference between two ultrafast laser pulses. The second emitter is a photoconductive antenna. It generates a higher amplitude radiation. The third emitter is a metallic spintronic trilayer. It generates a broadband radiation fully covering 1~30 THz.
- Further research will focus on topological aspects of magnetic Weyl semimetals like Mn_3Sn and Mn_3Ge. By measuring conductivity and Faraday angle measurement, I want to reveal the Berry curvature effects in these materials.

Low Dimensional Magnetism Group, Nanjing University

➢ **Topic:** ***Geometry frustration in an artificial 2D-rotational spin ice***

Undergraduate Research Assistant, Advisor: Prof. Haifeng Ding *Sep.2017-Nov.2018*

- Developed an artificial 2D spin ice system in a macroscopic scale. In this system, we use little magnets to represent spins. The centers of these magnets are fixed in a 2D Kagome array. Each magnet can rotate freely in-plane. External magnetic fields can be applied in-plane.
- Measured the hysteresis loop and First-Order-Reversal-Curves (FORCs) of the system. Meta-stable regions were identified in the curves.
- Calculated the number of vertices obeying Ice Rule under different magnetic field.
- Measured the threshold external field needed to sustain a configuration obeying Ice Rule.

Design Project of College Physics Experiment

- **Topic:** ***Verification experiment of Faraday Effect based on multiple wave interference***

Undergraduate Research, Advisor: Prof. Sihui Wang *Jun.2017*

- Built a simplified Fabry-Perot interferometer. External magnetic field is applied along the light path.
- Measured the transmission light intensity at different angle.
- Calculated the angle dependence of transmission light, which is the result of interference of multiple linear polarized lights with different polarization planes.

ACADEMIC ACTIVITIES

Magdalene College, University of Cambridge **Cambridge, UK**

Summer Institute *Aug.2018*

Oriel College, University of Oxford **Oxford, UK**

Summer Institute *Aug.2018*

Peking University **Beijing, China**

Summer School *Jul.2017*

HONORS & AWARDS

Elite Program Scholarship **(top 2%)** *Dec.2018*

Guorui Scholarship *Nov.2018*

Yingcai Scholarship **(top 4%)** *May.2018*

Xing Quan Scholarship *Nov.2017*

People's Scholarship (twice) *Nov.2017*

China National Scholarship **(top 1.5%)** *Nov.2016*

Outstanding Student Leaders of Nanjing University *Nov.2017*

Outstanding Student of Nanjing University *Nov.2016*

SKILLS

Lab skills: Terahertz spectrometer; Second-Harmonic Generation; Light path alignment; Laser instrument: Coherent-Vitara, Coherent-Astrella; Low temperature instrument: Montana.

Computer Skills: C language, Python, LabVIEW, Igor Pro.