SHAN ZHONG

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EDUCATION

Peking University **Bachelor of Science** 09/2017-07/2021

Major in Physics, GPA: 88/100 , GRE Physics Sub 93% below

RESEARCH INTERESTS

Emergence of collective behavior in complex systems such as condensed matter, living systems, etc

PUBLICATIONS & SUBMISSIONS

1. (*co-author submission*) Orbital-Selective High-Temperature Cooper Pairing Developed in the Two-Dimensional Limit
2. (*co-author*) Hetero-site nucleation for growing twisted bilayer graphene with a wide range of twist angles. *Nat.Comms.***12**,2391(2021)
3. (*co-author*) Equally Spaced Quantum States in van der Waals Epitaxy-Grown Nano-Islands. nanolett
4. (*co-author patent in Chinese*) Multilayer Graphene and Its Synthesis Method. (link)

SELECTED RESEARCH

Graph Embedding in Hyperbolic Space 07/2021 - present

Advisor: Carlo V.Cannistraci *Tsinghua Laboratory for Brain and Intelligence*

- Developed multiple hyperbolic graph embedding algorithms by extending the pre-weighting+inference+adjustment scheme. Evaluated against the state-of-the-art graph neural network methods.
- Also involved in projects of network geometry estimation, improved neural network training & architecture design inspired by brain network.

Finite-size Supercell Correction for Charged Defects under PBC 09/2019 - 01/2020

Advisor: Ji Chen *School of Physics, Peking University*

- Taught myself *VASP* and applied Matlab scripts to calculate Defect Formation Energy & make finite-size supercell corrections for spurious Coulomb interactions, for charged defects under periodic boundary conditions.

Orbital Selective High-Temperature Cooper Pairing at the 2D Limit 03/2019 - 12/2019

Advisor: Jian Wang *International Center for Quantum Materials, Peking University*

- Helped sample preparaion and microscopy measurement. In charge of developing Matlab scripts for analyzing & post-processing STM image datasets, drift correction, and various model fitting.
- Familiarity with high-T_c superconductivity, scanning tunneling microscopy, and FeSe/$SrTiO_3$ system.

Twisted Multilayer Graphene and Its Synthesis Method 09/2018 - 01/2019

Research assistant *College of Chemistry and Molecular Engineering, Peking University*

- Contributed in experiment pipeline determination and twist angle statistics. Co-author paper on controllable synthesis & characterization of twisted graphene(*Nat.Comms.***12**,2391(2021)), also a Chinese patent(201910680165.0.)

OTHER EXPERIENCES

Citadel & Citadel Securities Asia-Pacific datathon 03/2021

- Developed sports betting strategies using model prediction and mispriced odds in python. Composed half of the final report. Group collabration via Slack, Google Cloud, etc.

Visiting scholar at the Weizmann Institute of Science 01/2020-03/2020

Advisor: Binghai Yan *Department of Physics, Weizmann Institute of Science, Israel*

- Independently learned (two weeks, two English books, >600 pages) and implemented schemes of simplifying linear response tensors based on symmetry considerations, using Group Theory.
- Participated IPS (Israel Physics Society) 2020 conference and other seminars & lab tours.

Vice minister of Academic Practice Department of the Student's Union 09/2018-06/2019

- In charge of organizing seminars and talks for students, networking with professors, and making invitations and appointments.
- Editor of *PKU Physical Review*, Issue 2.

HONORS AND AWARDS

Outstanding Undergraduate Research	06/2021
Excellent Study Award	2019-2020
PKU Scholarship in Physics (twice)	09/2019 & 03/2020
First prize (Beijing), National Mathematics Modeling Contest	10/2019
Excellent Research Award	2018-2019
Ruitian Tomorrow's Star Scholarship	2018-2019
May 4th Scholarship	2017-2018
Merit Student in PKU	2017-2018

SKILLS

Technical Skills: C/C++, Matlab, Python, Linux, MySQL, Mathematica, LaTeX

Language: TOEFL 107 (L 30, S 27), GRE 328 + 3.5 (Q 170)