

Jiasheng He

Curriculum Vitae 25 October 2020

(614) 736-2836 he.1326@osu.edu
484 Stinchcomb Drive, Columbus, Ohio 43202, USA
<https://hjs20092009.github.io>
<http://u.osu.edu/he1326hseportfolio/>

EDUCATION

The Ohio State University Columbus, Ohio, USA expected to graduate in May 2021
B.S. in Physics 4.000 out of 4.000 Physics GPA
B.S. in Mathematics 3.972 out of 4.000 Mathematics GPA
Arts and Sciences Honors Program 3.981 out of 4.000 Total GPA
Senior $\Phi K \Phi$

HONORS AND AWARDS

Merit Scholarship from Rickard Memorial Fund, The Ohio State University Spring 2020
Nominated by mathematics faculty and awarded to honors students with outstanding academic record
Smith Senior Award, The Ohio State University April 2020
Nominated by physics faculty and to the fourth-year students for high academic achievement
Merit Scholarship from Gordan Memorial Fund, The Ohio State University Autumn 2019
Nominated by mathematics faculty and awarded to honors students with outstanding academic record
Smith Junior Award, The Ohio State University April 2019
Nominated by physics faculty and awarded to the third-year students for high academic achievement
Smith Sophomore Award, The Ohio State University April 2018
Nominated by physics faculty and awarded to the second-year students for high academic achievement
Dean's List, The Ohio State University Every Full-Time Semester
Award to the students with a 3.5 or higher GPA and more than 12 graded credit hours in a semester

RESEARCH INTERESTS

Strongly-interacting many-body systems and their interaction with light and strong fields: superconductivity, quantum Hall effect, topological insulators, and symmetry breaking in phase transition. The geometric and topological description of these systems. Imaging, nitrogen-vacancy center, and related topics in quantum optics.

RESEARCH EXPERIENCES

Wigner Crystal State in Twisted Bilayer Graphene *Solid State Theory*
Advised by Dr. Brian Skinner at The Ohio State University.
Investigated the Wigner crystal state of electrons on twisted bilayer graphene; calculated the lowest energy per electron and found the melting point of the Wigner crystal; the twisted bilayer graphene provides a different effective fine structure constant and formalism of potential
Becchi-Rouet-Stora-Tyutin (BRST) Theory in Density Functional *Quantum Many-Body Theory, Quantum Gauge Theory*
Advised by Prof. Richard Fournstahl at The Ohio State University.
Carefully studied the constrained Hamiltonian system, ghost, and the algebra and geometry of BRST quantization; applied them in formulating the density functional of a Mexican hat toy model
Mass Density and Velocity Distribution of Dark Matter Haloes *Computational Many-Body Astrophysics*
2019 Summer Undergraduate Research Program at The Ohio State University with scholarship \$3500, advised by Dr. Annika Peter.
Ran cosmological simulation programs AREPO and GADGET-2 on supercomputer, analyzed the dark matter density and speed; the result was presented in a poster at the poster session of the program.

Check details and current results of my research at my website listed above.

SKILLS

Proficient C C++ Python bash \LaTeX 2 ϵ GSL gnuplot h5py and HDF5 matplotlib numpy SciPy
jupyter notebook Wolfram Mathematica SciDAVis ImageJ Microsoft Word, Excel, PowerPoint
seven-year-long using experience of RedHat / CentOS / fedora Linux operating system
Familiar HTML MATLAB BSD operating system

EMPLOYMENT

The Ohio State University, Student Instructional Assistant August 2018 – May 2019
Tutored, graded homework, and proctored exams for intermediate mechanics course