

SHANG REN

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EDUCATION

Rutgers University

Aug. 2019 - Current

Ph.D. student in Department of Physics and Astronomy
Advisor: David Vanderbilt

Iowa State University

Aug. 2016 - Aug. 2019

Ph.D. student in Department of Physics and Astronomy
M.S. in Condensed Matter Physics
Advisor: Kai-Ming Ho

University of Science and Technology of China

Aug. 2011 - Jun. 2015

Undergraduate Student in the Special Class for the Gifted Young
B.S. in Applied Physics
Advisor: Zhenyu Zhang

PUBLICATION LIST

(published)

1. **S. Ren**, I. Souza, and D. Vanderbilt,
“Quadrupole moments, edge polarizations, and corner charges in the Wannier representation,”
[Phys. Rev. B **103**, 035147 \(2021\)](#)
2. L. Li, **S. Ren**, W. Qin, S. Zhang, X. Wan, Y. Jia, P. Cui, and Z. Zhang,
“Emergence of Van Hove singularity and topological states in Pb₃Bi/Ge(111) Rashba systems,”
[Phys. Rev. B **102**, 035150 \(2020\)](#)
3. **S. Ren**, Y. Sun, F. Zhang, A. Travesset, C.-Z. Wang, and K.-M. Ho,
“Phase diagram and structure map of binary nanoparticle superlattices from a Lennard-Jones model,” [ACS Nano **2020** *14* \(6\), 6795-6802](#)
4. **S. Ren**, Y. Sun, F. Zhang, A. Travesset, C.-Z. Wang, and K.-M. Ho,
“Calculation of critical nucleation rates by the persistent embryo method: application to quasi hard sphere models,” [Soft Matter, **2018**, *14*, 9185-9193](#)

(in preparation)

1. **S. Ren**, H. Yang, S. Singh, E. Turner, K. Jones, P. Batson, E. Garfunkel, and D. Vanderbilt,
“First-principles study of Humble defects in Ge and GeSi alloys,”
(*submitting to Phys. Rev. B*)
2. H. Yang, **S. Ren**, S. Singh, E. Turner, K. Jones, P. Batson, D. Vanderbilt, and E. Garfunkel,
“Humble planar defects in SiGe nanopillars,” [arXiv **2111.04145**](#)
(*submitted to Phys. Rev. B Letter*)

PRESENTATIONS

(major)

1. **APS March Meeting 2021**, virtual
M45.00004 : Quadrupole moments, edge polarizations, and corner charges in the Wannier representation
Shang Ren, Ivo Souza, and David Vanderbilt

2. **APS March Meeting 2020**, Denver, Colorado (canceled)
 L31.00008: Phase Diagram and Structure Map of Binary Nanoparticle Superlattices from a Lennard-Jones Model
Shang Ren, Yang Sun, Feng Zhang, Alex Travesset, Cai-Zhuang Wang, and Kai-Ming Ho
3. **APS March Meeting 2019**, BOSTON, MA
 A61.00002: Calculation of critical nucleation rates by the persistent embryo method: application to quasi hard sphere models
Shang Ren, Yang Sun, Feng Zhang, Alex Travesset, Cai-Zhuang Wang, and Kai-Ming Ho

(contributed)

1. **Microscopy and Microanalysis 2021**, virtual
 A new planar defect in SiGe nanopillars
 Hongbin Yang, **Shang Ren**, Emily Turner, Sobhit Singh, Kevin S. Jones, Philip E. Batson, David Vanderbilt, and Eric Garfunkel
2. **APS March Meeting 2019**, BOSTON, MA
 F45.00015: Structural stability and electronic properties of the chiral topological superconductor Pb3Bi/Ge(111): A first-principles study
 Lei qiang Li, Wei Qin, **Shang Ren**, Ping Cui, and Zhenyu Zhang
3. **APS March Meeting 2018**, Los Angeles, CA
 K13.00008: Chiral p-wave superconductivity induced by Berry phase effect in doped monolayer Pb3Bi on Ge (111)
 Wei Qin, Lei qiang Li, **Shang Ren**, and Zhenyu Zhang

POSTERS

1. **Electronic Structure Conference 2021**, virtual, held by CCQ, Flatiron Institute
[Quadrupole moments, edge polarizations, and corner charges in the Wannier representation](#)

AWARDS & HONORS

Van Dyke Fund Travel Award, Rutgers University	Mar. 2021
Travel Award, Iowa State University	Mar. 2019
Theory Winter School Travel Award, National High Magnetic Field Laboratory	Jan. 2019
Outstanding Graduate Scholarship, University of Science and Technology of China (USTC)	Jun. 2015
Award of National Undergraduate Training Program for Innovation and Entrepreneurship, Ministry of Education, China	Apr. 2015
Outstanding Prize of Undergraduate Research Program (top 5%), USTC	Sep. 2014
Outstanding Student Scholarship, USTC	Sep. 2011, 2012, 2013, & 2014

TECHNICAL STRENGTHS

Computer Languages:

C, Python, C++, FORTRAN, MATLAB, Wolfram Mathematica, \LaTeX , Unix bash

Software:

VASP, Quantum Espresso, PythTB, VESTA, Material Studio, LAMMPS, HOOMD-blue

SERVICE

Reviewer for Physical Review B, Arabian Journal of Chemistry.

REFERENCES

David Vanderbilt

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Board of Governors Professor

Department of Physics and Astronomy, Rutgers University, New Jersey 08854, USA

Ivo Souza

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Research Professor

Centro de Física de Materiales, Universidad del País Vasco, 20018 San Sebastián, Spain

Ikerbasque Foundation, 48013 Bilbao, Spain