

Lu Niu

PhD Candidate in Physics
Teaching Assistant on Analytical Mechanics

Condensed Matter Theory Group
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Personal Information

Gender: Male
Day of Birth: May 12, 1994
Place of Birth: Huairou District, Beijing, P.R.China
Nationality: The People's Republic of China
Office: Expected

Research Interests

Quantum Computation:

Quantum circuit.

Ab Initio:

The surface effect of metal nano-particles.

Education

The University of Sydney

Jul. 2019 – Present

PhD of Science in Physics

Subject: Plasmonics
Thesis: Quantum Computation Logic Circuits Realization Based on Plasmon Effects.
GPA: Excepted
Supervisor: Catherine Stampfl

University of Science and Technology Beijing

Sep. 2015 – Jun. 2017

MPhil of Science in Physics

Subject: Atom and Molecular Physics
Thesis: Effect of External Field on the IV Characteristics through the Molecular Nano-junction.
GPA: 3.6
Supervisor: Luxia Wang

Expertise and Technical Strengths

Programming: C/C++, Fortran, Python, Julia (Main), Gnuplot, \LaTeX
Software: Linux, Git, TensorFlow, VASP, Octopus
Expertise: Mathematical Analysis, Topology, Algorithms, Machine Learning, Density Functional Theory, Plasmonics, Molecular Physics, Quantum Optics, Quantum Computation
Language: Mandarin Chinese (Native), English

Work Experience

University of Science and Technology Beijing

Teaching Assistant on Analytical Mechanics
Teaching Assistant on College Physics

Spring, 2017 and Spring, 2016
Autumn, 2016 and Autumn, 2015

Research Experience

Effect of External Field on the IV Characteristics through the Molecular Nano-junction*Sep. 2016 – Jun. 2017 @ USTB, Beijing, P.R.China*

This research involves molecule physics. we analyzed the steady current between two electrodes under distinct bias voltages, and studied transient current under Gaussian pulse with different widths; we established the physical model of Molecular junction with external fields which could produce coupling with the molecule.

Plasmon-Enhanced Heterogeneous Electron Transfer with Continuous Band Energy Model*Apr. 2016 – Mar. 2017 @ USTB, Beijing, P.R.China*

We calculated the Plasmon-Enhanced heterogeneous electron transfer in semiconductor continuous model with the master equation. And simulated the physical model and conducted the scientific calculation.

Molecular Emission Spectrum of Combined System and its Fourier Analysis*Dec. 2015 – Apr. 2016 @ USTB, Beijing, P.R.China*

We probed into the emission spectrum of molecular with Fourier analysis. And built the equations set which describes the physical process of the molecule system excitation in the quantization radiation field.

Publications

2018

Lu Niu, Luxia Wang*; *Effect of External Field on the I-V Characteristics through the Molecular Nano-junction* (in Chinese); *Acta Physica Sinica*, 67, 027304 (2018).

2017

Dandan Zhao, Lu Niu, Luxia Wang*; *Plasmon Enhanced Heterogeneous Electron Transfer with Continuous Band Energy Model*; *Chemical Physics*, 493 (2017) 194-199.

References and Activites

2016

Nov. 14 – Nov.18, Beijing, The 2nd Joint Workshop on Condensed Matter Science, Peking University & IMPRS. @ PKU, Beijing, P.R.China.

Awards and Honors

2016

First-class Scholarship, University of Science and Technology Beijing.

Updated May 2019