LU NIU

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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.

Overall GPA:

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.

Overall GPA: 3.2

EXPERTISE AND TECHNICAL STRENGTHS

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

RESEARCH EXPERIENCE

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

- Referred to materials about molecule; analyzed steady current of two electrodes under distinct bias voltages; studied transient current under Gaussian pulse with different widths;
- Established the physical model of Molecular junction with external field which could produce coupling with the molecule;
- Simulated the physical model and conducted scientific calculation with Fortran;
- Visualized the result with Python; compared I-V characteristic curve of the molecular junction impacted by external field with the curve without influence from external field;
- Drew the conclusion that external light field may impose effective influence on the molecular junction.

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

- Calculated Plasmon enhanced heterogeneous electron transfer in semiconductor continuous model with master equation;
- Simulated the physical model and conducted scientific calculation with Fortran and Visualized;
- Visualized the result with Origin.

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

- Consulted related materials; probed into emission spectrum of molecular with Fourier analysis;
- Built the equations set which describes the physical process of the molecule system excitation in the quantization radiation field;
- Solved the equations with Fortran.

INTERNSHIP EXPERIENCE

Analytical Mechanics *Spring, 2017 and Spring, 2016*
Teaching Assistant *Professor Luxia Wang*

- Organized exercise class; answered students' questions;
- Corrected assignments and papers;
- Helped teacher prepare course related materials.

College Physics *Autumn, 2016 and Autumn, 2015*
Teaching Assistant *Lecturer Quanshui Li*

- Corrected assignments and papers;
- Answered students' questions after class.

PUBLISHED RESEARCH ARTICLES

2018

- Lu Niu, Luxia Wang*; *Effect of External Field on the I-V Characteristics through the Molecular Nanojunction* (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.

AWARDS AND HONORS

2015 Third-Class Scholarship, University of Science and Technology Beijing