# Jian Wang

*PhD, University of Michigan*

✆ +1 (734) 548 7758
✉ jianwolf@umich.edu

## Education

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|---|---|
| 09/2015– present | PhD in Computer Science and Engineering (expected). |
| 09/2011– 07/2015 | B.S. in Physics, Peking University, Beijing, China. Thesis title: Simulating quantum dynamics for finite dimensional systems |

## Research Experience

**09/2015– present**

**Quantum Thermodynamics**

Advisor: Prof. Yaoyun Shi, University of Michigan.

Studying topics on quantum thermal machine and laws of quantum thermodynamics.

**09/2014– 06/2015**

**Simulating quantum dynamics for finite dimensional systems**

Advisor: Prof. Giulio Chiribella, Tsinghua University.

Devised a method for simulating time evolution of finite-dimensional quantum systems by stationary distributions, using Page-Wootters mechanism.

**06/2014– 09/2014**

**Modeling ultralong-time-coefficient dynamical decoupling**

Advisor: Prof. Heng Fan, Chinese Academy of Sciences, and Prof. Liang-Zhu Mu, Peking University.

Investigated Uhrig and CPMG dynamical decoupling technique. Modeled an experiment on dynamical decoupling, to explain its ultralong time coefficient.

**06/2012– 05/2014**

**Fidelity of measurement-based quantum computation (MBQC)**

Advisor: Prof. Heng Fan, Chinese Academy of Sciences, and Prof. Liang-Zhu Mu, Peking University.

Calculated the fidelity of MBQC systems under a variety of noises, especially under Pauli errors and boson environments. Found a fidelity sudden-drop phenomenon.

**11/2011– 06/2012**

**Green's function for surface plasmon**

Advisor: Prof. Ying Gu, Peking University.

Used Green's function method to solve the electromagnetic field near a metal nanostructure. Studied the scattering of monochromatic plane waves on the structure.

## Publications

[1] **Jian Wang**, Ding Zhong, Liang-Zhu Mu, Heng Fan. "Fidelity of measurement-based quantum computation in a bosonic environment", Phys. Rev. A 90, 052306 (2014).

[2] Ding Zhong, **Jian Wang**, Ning Dai, Liang-Zhu Mu, Heng Fan. "Measurement-based quantum computation under different types of noises", arXiv:1310.0228 (2013).

## Scholarships and Awards

01/2015 **Full Fellowship**, Computer Science and Engineering Graduate Program, University of Michigan, USA.

11/2014 **The Prize for the Best Presentation**, "Fulan" Undergraduate Physics Conference, Sun Yat-Sen University, Guangzhou, China.

11/2014 **First Prize, Weiming Student Scholarship**, top 3% students in School of Physics, Peking University.

05/2013 **National Undergraduate Innovational Program**, the highest funding support for undergraduate research program.

05/2013 **First Prize, Math Modeling Competition**, 7 out of 102 teams, from Peking University. As the leader of our group.

11/2012 **Excellent Student**, top 7% students in School of Physics, Peking University.

## Talks

02/2016 **The second law of quantum thermodynamics**, Quantum information seminar, University of Michigan, USA.

12/2015 **Optimal work extraction from any quantum processes**, Quantum information seminar, University of Michigan, USA.

11/2014 **Measurement-based quantum computation and bosonic environments**, "Fulan" Undergraduate Physics Conference, Sun Yat-Sen University, Guangzhou, China.

05/2014 **Fidelity of measurement-based quantum computation in a bosonic environment**, report for National Undergraduate Innovational Program.

05/2013 **A quantum computation scheme using entanglement and measurement**, All Things Tech conference, Stanford Center, Peking University.

## Academic Activities

07/2016 **It from Qubit Summer School**, Waterloo, Canada.

01/2016 **Quantum Information Processing (QIP) 2016**, Banff, Canada.

07/2013 **Visit to Chinese Academy of Sciences**, Shanghai, China. As the group co-leader.

Spring 2013 **Seminars on Renewable Energy**, Stanford Center, Peking University. By Prof. Zhixun Shen, Stanford University. With students from Stanford University.

08/2011 **Wu Chien-Shiung Science Camp**, Taiwan. A seminar to meet world-class scientists. Only enrolled five students from mainland China.