

# Qiwei YU

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## EDUCATION

School of Physics, Peking University, China.

Sept 2017 – July 2021

B.Sc. in Physics (expected July 2021)

Thesis: *The Nonequilibrium Thermodynamics of Flocking*. Advisor: Prof. Yuhai Tu, Prof. Chao Tang

## RESEARCH INTERESTS

Using (nonequilibrium) statistical physics, stochastic processes, and computer simulation to study:

- The spatio-temporal organization of living systems and soft matter: collective dynamics, self-organization, etc.
- The dynamics and thermodynamics of far-from-equilibrium biological and physical systems.

## PUBLICATIONS ( = INDICATES EQUAL CONTRIBUTIONS, \* INDICATES CORRESPONDING AUTHORS )

2. Q. Yu, D. Zhang, and Y. Tu\*, *Inverse power law scaling of energy dissipation rate in nonequilibrium reaction networks*, **Phys. Rev. Lett.** 126, 080601 (2021).
1. Q. Yu, J. D. Mallory, A. B. Kolomeisky, J. Ling, and O. A. Igoshin\*, *Trade-offs between speed, accuracy, and dissipation in tRNA<sup>Le</sup> aminoacylation*, **J. Phys. Chem. Lett.** 11, 4001-4007 (2020).

## RESEARCH EXPERIENCE

- **Research Assistant**, Dept. of Molecular Biophysics and Biochemistry, Yale University June–Aug 2020  
Project: Mean-field model of dendrite morphogenesis.  
Advisor: Prof. Joe Howard and Prof. Yuhai Tu.
- **Visiting Researcher**, Center for Theoretical Biological Physics, Rice University Aug 2019 – Jan 2020  
Project: Trade-offs between key properties in kinetic proofreading (KPR).  
Advisor: Prof. Oleg Igoshin.
- **Research Assistant**, Center for Quantitative Biology, Peking University Feb 2019 – Present  
Project: Nonequilibrium thermodynamics in extended living systems.  
Advisor: Prof. Yuhai Tu.
- **Research Assistant**, Center for Quantitative Biology, Peking University July–Nov 2018  
Project: Single-cell RNA sequencing using droplet microfluidics.  
Advisor: Prof. Chao Tang.

## TEACHING AND OUTREACH EXPERIENCE

- **Teaching Assistant**, Thermal Physics, Peking University Spring 2020  
Selected as *Outstanding Teaching Assistant* based on student ratings.
- **Assistant to the Academic Committee**, The 2<sup>nd</sup> European Physics Olympiad May–June 2018  
Assisted in preparing the experiment tasks of the Olympiad at Moscow Institute of Physics and Technology

## HONORS AND AWARDS

### At Peking University:

- Peking University “Outstanding Teaching Assistant” Award Sept 2020
- Peking University WeiMing Scholarship June 2020
- Peking University Future Leadership Scholarship May 2018 – 2021
- Peking University “Merit Student Pacesetter” Award Sept 2018 & 2019
- Peking University Freshmen Scholarship Sept 2017

**In Science Olympiads:**

- Gold Medal in 18<sup>th</sup> Asian Physics Olympiad (2<sup>nd</sup> best in theory and overall result) Yakutsk, Russia, May 2017
- Gold Medal in 33<sup>rd</sup> Chinese Physics Olympiad Wuhan, China, Nov 2016
- Gold Medal in 32<sup>nd</sup> Chinese Physics Olympiad Changsha, China, Nov 2015
- Gold Medal in 9<sup>th</sup> Asia-Pacific Informatics Olympiad (China District) Beijing, China, May 2015
- Gold Medal in 32<sup>nd</sup> Chinese National Olympiad in Informatics (Winter Camp) Hangzhou, China, Feb 2015
- First Prize in Chinese National Olympiad in Informatics in Provinces Zhejiang, China, Nov 2013 & 2014