

## YIXIAN CHEN

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### EDUCATIONAL BACKGROUND

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#### Department of Physics, [Tsinghua University](#)

Beijing

*Bachelor in Physics*

Sep 2017 - Expected Jun 2021

- **GPA:** 3.9/4.0 (Rank 7/47)
- **Awards & Honors:**
  - Jiang Nan-xiang Scholarship (Highest Honor for Juniors), 2019*
  - Mathematical Contest in Modeling Honorable Mention, 2019*
  - Dec. 9<sup>th</sup> Scholarship (Highest Honor for Sophomores), 2018*
  - Scholarship for Outstanding Overall Performance, 2018&2019*
  - Scholarship for Outstanding Scientific Research, 2018&2019*
  - Chinese Undergraduate Physics Tournament First Prize, 2018*
- **Programs:**
  - Admitted into Tsinghua University Spark scholarship project, a top researcher cultivation program
  - [UCLA CSST](#) 2020 research program admitted (90 students in mainland China, declined due to pandemic situation)
  - Member of Chi-sun Yeh Physics class, part of Tsinghua University Xuetao talent cultivation program

#### Department of Foreign Languages, Tsinghua University

Beijing

*Minor in English Literature*

Sep 2018 - Expected Jun 2021

- **GPA:** 4.0/4.0
- Fluent in English, renowned oral speaker and debater, representing China in international speech contests
- **Awards & Honors:**
  - China Daily "21st Century" Cup English Speaking Competition (College Group) [National Championship](#), 2019*
  - English Speaking Union International Public Speech Contest (IPSC) [Finalist/Third Place](#), 2019*
  - China Daily "21st Century" Cup English Speaking Competition (High School Group) National Championship, 2017*

#### University of California, Berkeley

Berkeley

*Semester Exchange Program (Fall 2019)*

Aug 2019 - Dec 2019

- **GPA:** 4.0/4.0
- Department sponsored program for taking relevant courses and research

### RESEARCH EXPERIENCES

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#### Retention of Long-Period Gas Giants: A Revisit of Type II Migration

Beijing

*Supervisor: Douglas. N. C. Lin, Professor, Department of Astronomy, UC Santa Cruz*

Feb 2020 - May 2020

- Carried out hydrodynamic simulations combined with an analytic study to examine the transition between different paradigms of type II migration for gap-opening planets
- Analyzed the mechanism of gas flow across depleted gap so that the surface density distribution is maintained in a quasi-steady state, and how migration rate lies delicately on the balance of low-order Lindblad torques

#### Preservation of Super-Earth After Pebble-Isolation Phase

Beijing & Berkeley

*Supervisor: Douglas. N. C. Lin, Professor, Department of Astronomy, UC Santa Cruz*

Dec 2018 - Mar 2020

- Constructed analytical and numerical models for planet-disk interactions and planetary atmosphere evolution, traced the atmospheric evolution of terrestrial planets and gas giants, identified important mechanisms in super-Earth formation, relevant work accepted by *ApJ*
- Oral presentation of the topic in *Formation and Evolution of Planetary System Conference* (Urumqi, July 2019), invited by TCAN (Theoretical Computational Astrophysics Network) members in UArizona to give a talk on the relevant paper (June 2020)

### **Microlensing of the Galactic Center Supermassive Black Hole**

**Berkeley**

*Supervisor: Jessica R. Lu, Associate Professor, Department of Astronomy, UC Berkeley*

Sep 2019 - May 2020

- Developed new and more efficient approaches to model stellar distribution and numerically calculate Microlensing rate based on the methodologies put forward 20 years ago and implemented them with original codes in Python language
- Analyzed with updated data from last 20 years' observations, achieving newer and more accurate results

### **High-energy Radiation Analysis of Active Galactic Nuclei**

**Beijing**

*Department Student Research Program (SRT)*

Jul 2018 - Mar 2019

*Supervisor: Youhong Zhang, Associate Professor, Department of Physics, Tsinghua University*

- Analyzed data from Fermi Telescope to calculate variance of AGN light-curves with C++ and python on Ubuntu system
- Finished a [report](#) useful for future research and instructing newcomers into the program
- Received A+ in evaluation of contribution to the program

### **Mathematical Contest in Modeling (MCM)**

**Beijing**

*Honorable Mention Reward*

Jan 2019

- Optimized the allocation and packing of drones to deliver medical aid to hospitals in the (hypothetically) hurricane-struck island of Puerto Rico, as well as a surveillance plan of road conditions

### **Chinese Undergraduate Physics Tournament (CUPT)**

**Beijing**

*First Prize, College Competition*

Oct 2017 - Mar 2018

- Conducted simulations and experiments on physical phenomenon such as *Acoustic Levitation*, *Heron Fountain*, learned to use field simulation software *Comsol*
- Give oral presentation and defense, performance being evaluated by adjudicators

### **PUBLICATIONS**

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1. **Chen Y.X.\***, Li Y.P., Li H., Lin D.N.C., [\*The Preservation of Super Earths and the Emergence of Gas Giants after Their Progenitor Cores have Entered the Pebble Isolation Phase\*](#), *The Astrophysical Journal*, 896, 135
2. **Chen Y.X.\***, Zhang X., Li Y.P., Li H., Lin D.N.C., [\*Retention of Long-Period Gas Giant Planets: Type II Migration Revisited\*](#), Resubmitted to *ApJ* after minor revision
3. **Chen Y.X.\***, Lu J. R., [\*Microlensing by Galactic Center Supermassive Black Hole\*](#), Submitted to *ApJ*
4. Li R.\*, **Chen Y.X.**, Lin D.N.C., *Dust-Accumulation & Planet Formation near the Magnetosphere Truncation Radius*, in preparation

### **SCIENTIFIC TALKS**

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- [The Preservation of Hot Super Earths and Cold Gas Giants](#) (Hosted in) Tucson, Arizona  
*Online Talk, invited by Theoretical Computational Astrophysics Network members in UArizona* Jun 2020
- **Introduction to Planetary Astrophysics** Beijing  
*Chi-sun Yeh Academic Lectures, Tsinghua University* May 2020
- [Formation of Close-in Planets \(sub-Neptunes/super-Earths\)](#) Beijing  
*Department of Astronomy (DoA) seminar on theoretical astrophysics, Tsinghua University* Apr 2020
- [Galactic Center Microlensing](#) Berkeley, California  
*Research project talk, UC Berkeley* Dec 2019
- [Dust Diffusion in Protoplanetary Disks and Formation of super Earths](#) Urumqi, Xinjiang  
*Research project talk, Formation and Evolution of Planetary System Conference* Jul 2019
- [Linear Magneto-Rotational Instability](#) Beijing  
*Department of Astronomy (DoA) seminar on theoretical astrophysics, Tsinghua University* Apr 2019

## SKILLS AND INTERESTS

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**Programming:** Mathematica, MATLAB, python, C++

### Music and Vocal performance:

- Member of Tsinghua University chorus and Berkeley Chinese Acappella, performed in various concerts and competition), Award-winning campus singer, Guest performer at student gala
- Live performances: [My Way](#), [Wandering Earth Theme](#)

### Film production:

- Wrote screenplays for and produced short play/film *Ode to Guitar (2018)* and [A Wicked Letter Through Time \(2019\)](#), well-received by audiences in Department Student Gala
- Taking screenwriting courses at Berkeley Extension, part of my final project [Singularity](#)

### Secretary of Student Union, Department of Entertainment:

- Helped organize student gala and festivals; Wrote propaganda articles and designed posters