YIXIAN CHEN

Email: yx-chen17@mails.tsinghua.edu.cn | Tel: (86)13456776599 | Address: Haidian District, Beijing

EDUCATIONAL BACKGROUND

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. 9th 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 situation)
  Member of Chi-sun Yeh Physics class, part of Tsinghua University Xuetang 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

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

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

- **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

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