

Yisheng Tu

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- EDUCATION**
- University of Rochester, Rochester, NY, USA** Sep 2016 – May 2020
- Bachelor of Science double major: Physics and Astronomy & Mathematics
 - Minor in Music
 - Cumulative GPA: 3.77 /4.0
- USPAS (U.S. Particle Accelerator School hosted by University of New Mexico)** Jun 2019 – Jun 2019
- Fundamentals of Accelerator Physics and Technology
 - Letter grade: A
- RESEARCH EXPERIENCE**
- Research Assistant, University of Rochester** Apr 2019 – current
- Supervisors: Prof. Adam Frank & Prof. Eric G. Blackman & Dr. Luke Chamandy
 - Project: Convection in Common Envelope Evolution
 - Change the equation of state (EOS) in AstroBear from ideal gas EOS to a more realistic EOS (possibly MESA EOS). The goal is to trigger convection in Common Envelope Evolution, and study its effect on envelope dynamics
- Lee Teng Internship, Fermi National Accelerator Laboratory (Fermilab)** Jun 2019 –Aug 2019
- Mentor: Dr. Tanaji Sen & Dr. Jean-Francois Ostiguy
 - Project: Theory and Conceptual Design of Stripline Kickers
 - Developed a semi-analytic solution for Stripline dipole and quadrupole kickers. Used the semi-analytic solver and Finite Element Method Magnetics (FEMM) to design kickers matching our requirements.
 - Wrote Fermilab project report: Y. Tu, T. Sen and J.-F. Ostiguy, Theory and conceptual design of stripline kickers, FERMLAB-CONF-19-380-AD (2019)
- Research Assistant, University of Rochester** Jul 2018 –Feb 2019
- Supervisors: Prof. Adam Frank & Prof. Eric G. Blackman & Dr. Luke Chamandy
 - Project: Energy budget and core-envelope motion in Common Envelope Evolution
 - Measured and analyzed in detail the energy budget in a Common Envelope Evolution simulation. Proposed an explanation of planetary nebula central binary star offset
- Research Assistant, University of Rochester** Feb 2018 –Jun 2018
- Supervisors: Prof. Adam Frank & Prof. Eric G. Blackman & Dr. Luke Chamandy
 - Project: Measuring the stability of a RGB star used in Common Envelope Simulation
 - Determined the stability of the RGB star on simulation grid by comparing a model without damping and another with damping.
- PUBLICATIONS**
- [1] T. Sen, **Y. Tu**, J.-F. Ostiguy “Fields and Characteristic Impedances of Dipole and Quadrupole Cylindrical Stripline Kickers”, 2020, Phys. Rev. Accel. Beams, 23, 012801
 - [2] Luke Chamandy, Eric G. Blackman, Adam Frank, Jonathan Carroll-Nellenback, Yangyuxin Zou and **Yisheng Tu** “How Drag Force Evolves in Global Common Envelope Simulations”, 2019, MNRAS, stz2813, <https://doi.org/10.1093/mnras/stz2813>
 - [3] Luke Chamandy, **Yisheng Tu**, Eric G. Blackman, Jonathan Carroll-Nellenback, Adam Frank, Baowei Liu and Jason Nordhaus. “Energy Budget and Core-Envelope Motion in Common Envelope Evolution”, 2019, MNRAS, 486, 1, 1070
 - [4] Luke Chamandy, Adam Frank, Eric G. Blackman, Jonathan Carroll-Nellenback, Baowei Liu, **Yisheng Tu**, Jason Nordhaus, Zhuo Chen, Bo Peng. “Accretion in common envelope evolution.” 2018, MNRAS, 480, 1898
- PRESENTATIONS**
- “Energy Budget and Core-Envelope Motion in Common Envelope Evolution.” Journal club, February 2019, University of Rochester, Rochester, NY, USA
 - (poster) “Theory and conceptual design of kickers” Lee Teng Internship, Summer 2019, Fermi National Accelerator Laboratory, Batavia, IL
 - (poster) “Energy budget, Unbound Mass in Common Envelope Evolution” 2019 Spring Symposium, STScI – The Deaths and Afterlives of Stars, April 2019, Baltimore, MD

**OTHER WORK
EXPERIENCE**

C. E. K. Mees observatory, Naples, NY

- Student summer tour guide
 - Presents the history of the observatory and facts of the cosmos
 - Operates the 24-inch reflector telescope and describe the sky to the guests

Summer 2018, Summer 2019

University of Rochester

- Teaching Intern, Department of Physics and Astronomy
 - Electric and magnetism (self-paced)
 - General Mechanics
 - Mechanics (HONORS)
 - Mechanics

Fall 2019
Spring 2019
Fall 2017, Fall 2018
Spring 2018, spring 2020

AWARDS

- Deans List, fall 2016 through fall 2019, College of arts and sciences
- Research Presentation Awards, University of Rochester

2016 – 2019
Mar 2019

**CAMPUS
ACTIVITIES**

Astronomy Club, University of Rochester

- Vice President Apr 2018 – Apr 2019
 - Help put ideas into motion; make suggestions to club activities. In charge of managing co-sponsorships with other organizations and booking rooms; coordinate events and keep track of club equipment.
- Business manager Apr 2017 – Apr 2018
 - Request purchase orders for events, plan the budget, manage all the financial forms and account for the club.
 - Lead meetings with the SA (Students' Association) accountant for the club and the account managers in the physics department.

Mock Trial, University of Rochester

Sep 2016 – Jan 2018

- Member
 - Act as attorney to use powerful argument to get as much as evidence for my "client" as possible
 - Act as witness to cooperate with attorney to get evidences and avoid objection from opposing counsel

**LANGUAGE AND
SKILLS**

- Chinese (Mandarin): First language.
- English: Excellent (Speaking, reading, writing, listening)
- German: Basic (reading, writing)
- Python
- Fortran
- LaTeX
- Oscilloscope
- Bash
- Java
- Mathematica
- MatLab
- HTML

OTHER INTERESTS

- Piloting
- Playing the Piano
- Performing Vocal Music
- Playing the Carillon