# Feiyu Quan

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## Education

**Chinese University of Hong Kong**
*Doctor of Philosophy, Astrophysics*                                                    2024 – Present

**University of Cambridge**
*Master of Advanced Study, Part III of the Mathematical Tripos*                          2023 – 2024

**University of Toronto**
*Honours Bachelor of Science (with High Distinction), Physics and Astrophysics*          2019 – 2023

## Skills and Interests

Familiar with Python, Jupyter Notebook, LaTeX and C. Basic knowledge of Linux, Git, and Fortran. Interested in applying numerical simulations and techniques to solve various problems in astrophysics.

## Awards

**University of Toronto Scarborough Dean's List**                                        2019 – 2023

**Department Excellence and Leadership Award**                                           Year 2022

## Publications

A. Pandhi et al. (including **F. Quan**), Alignment of dense molecular core morphology and velocity gradients with ambient magnetic fields, *Monthly Notices of the Royal Astronomical Society*, 2023, https://doi.org/10.1093/mnras/stad2283

## Research Experience

**Research Project: New algorithm to detect resonances in planetary systems**           Fall 2022
- We aim to improve an existing method for detecting mean motion resonances in planetary system. The method may be applied to secular resonances as well.
  Supervisor: Hanno Rein.

**CITA Summer Undergraduate Research Fellowship: How do disk galaxies warp?**            Summer 2022
- The project explores the processes that drive disk deformations, by analyzing outputs from Illustris TNG50, a state-of-the art magneto-hydrodynamical cosmological simulation that computes the formation and evolution of hundreds of thousands of galaxies.
  Supervisor: Neige Frankel and Joshua Speagle.

**Research Assistant: Investigate the statistical properties of star-forming clouds**    Fall 2021, Winter 2022
- The project investigates the statistical properties of star-forming clouds in our Galaxy, including gas densities, temperatures, and velocity structures, to compare these observed values with predictions from numerical simulations of how stars form. Financially supported by the University of Toronto Work Study program.
  Supervisor: Rachel Friesen.

**Research Project: Dynamical analysis of a recently discovered extra-solar planetary system using numerical tools**    Summer 2021
- Analysis of planetary system TOI-1260. We applied numerical simulation to the system to study its dynamical stability, and used MCMC to constrain the rate of precession of planet orbit to predict their transits.
  Supervisor: Hanno Rein.

## Teaching Experience

**Teaching Assistant: PHYA10, Physics I for the Physical Sciences**    Fall 2021
- Facilitating a 2 hour practical session each week for approximately 20 students including working through problems in small groups and demonstrating key problem solving methods. Managing detailed record of students performance and attendance.

**Physics Tutor at Environmental and Physical Sciences Students' Association**    Fall 2020, Winter 2021
- Physics tutor at UTSC EPSA, Physics Study Centre. Helping students understand concepts and solve problems in first-year physics (PHYA10/A11, PHYA21/A22).