

Yifei Jiao

<https://jiaoyf-thu.github.io>

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ABOUT ME

I am Yifei Jiao (he/him), a postdoc researcher at UC Santa Cruz and Tsinghua University. My research interests are focused on **the collisional and dynamical evolution of small planetary bodies**, as well as the asteroid exploration and deflection dynamics. I would enjoy exploring any unsolved and exciting questions of our solar system with theoretical and numerical methods.

EDUCATION

Tsinghua University, Beijing, China <i>PhD with Prof. Hexi Baoyin</i> <i>Numerical modeling of impact ejection and collisional evolution of asteroids</i>	2020–2025
Tsinghua University, Beijing, China <i>Bachelor of Engineering</i>	2016–2020

EXPERIENCE

University of California, Santa Cruz, CA, USA <i>Postdoctoral Research Fellow with Prof. Francis Nimmo</i>	Sep 2025–now
Shanghai Astronomical Observatory, Shanghai, China <i>Visiting Scholar with Prof. Xian Shi</i>	Aug 2025
University of Tokyo & NAOJ, Tokyo, Japan <i>Visiting Student with Prof. Seiji Sugita</i>	May 2025
LPL, University of Arizona, Tucson, AZ, USA <i>Visiting Student with Prof. Erik Asphaug</i>	Jan–Jun 2024
Tsinghua University, Beijing, China <i>Teaching Assistant for Theoretical Mechanics</i>	2020, 2021

GRANTS

National Natural Science Foundation of China (PI) <i>Impact dynamics and collisional evolution of highly porous asteroids</i>	2024–2025
Youth Talent Support Program of China Association for Science and Technology <i>Host by the Chinese Society of Space Research</i>	2024–2025

PUBLICATIONS

- Yifei Jiao**, Bin Cheng, Wen-Yue Dai, Erik Asphaug, Martin Jutzi, Sabina Raducan, Xiaoran Yan, Yang Yu, Hexi Baoyin. *Giant craters on 253 Mathilde revealing the cohesive porous interior of carbonaceous parent bodies. Nature Geoscience (under review)*
- Yifei Jiao**, Bin Cheng, Hexi Baoyin. *Probing the Moon from future asteroid impacts: a review. Science China Technological Sciences (under review)*

3. **Yifei Jiao**, Bin Cheng, Yukun Huang, Erik Asphaug, Brett Gladman, Renu Malhotra, Patrick Michel, Yang Yu, Hexi Baoyin. *Asteroid (469219) Kamo'oalewa's journey from the lunar Giordano Bruno crater to Earth 1:1 resonance*. *Nature Astronomy* (2024)
4. **Yifei Jiao**, Xiaoran Yan, Bin Cheng, Hexi Baoyin. *SPH-DEM modeling of hypervelocity impacts on rubble-pile asteroids*. *Monthly Notices of the Royal Astronomical Society* (2023)
5. **Yifei Jiao**, Bin Cheng, Hexi Baoyin. *Optimal kinetic-impact geometry for asteroid deflection exploiting Delta-V hodograph*. *Journal of Guidance, Control, and Dynamics* (2022)
6. Yixuan Wu, **Yifei Jiao**, Wen-Yue Dai, Yukun Huang, Zihan Liu, Bin Cheng, Hexi Baoyin, Junfeng Li. *Detectability of Lunar-Origin Asteroids in the LSST Era*. *The Astrophysical Journal Letters* (under review)
7. Yifan He, **Yifei Jiao**, Yixuan Wu, Wen-Yue Dai, Bin Cheng, Hexi Baoyin. *When the Moon shakes and glows: observational signatures of a potential 2024 YR4 impact*. *The Astrophysical Journal Letters* (in prep.)
8. Tamier Baoyin, **Yifei Jiao**, Bin Cheng. *Predicting the collision history of basaltic asteroids from parametrized shapes with an artificial neural network*. *Monthly Notices of the Royal Astronomical Society* (2025)
9. Wen-Yue Dai, Bin Cheng, Yukun Huang, **Yifei Jiao**, Wen-Han Zhou, Kun-Yi Ren, Harrison Agrusa, Seth Jacobson, Eiichiro Kokubo, Sebastien Charnoz, Yang Yu, Hexi Baoyin, Junfeng Li. *Diverse configurations of binary asteroids explained by multi-generation satellites*. *Nature Communications* (under review)
10. Nan Zhang, Zhong Zhang, **Yifei Jiao**, Hexi Baoyin. *Multi-trajectory combination for multiple ground target observation by maneuvering on-orbit satellites*. *IEEE Transactions on Aerospace and Electronic Systems* (2023)
11. Zhong Zhang, Nan Zhang, **Yifei Jiao**, Hexi Baoyin, Junfeng Li. *Multitree search for multisatellite responsiveness scheduling considering orbital maneuvering*. *IEEE Transactions on Aerospace and Electronic Systems* (2021)

CONFERENCES/SEMINARS

Seminar, Shanghai Astronomical Observatory, Shanghai, China	Aug 2025
PhD Academic Forum of Tsinghua University, Beijing, China	May 2025
Seminar, National Astronomical Observatory of Japan, Tokyo, Japan	May 2025
Seminar, University of Tokyo, Tokyo, Japan	May 2025
Europlanet Science Congress, Berlin, Germany	Sep 2024
Seminar, LPL, University of Arizona, Tucson, AZ, USA	Apr 2024
Young Scientist Forum of Planetary Science, Sanya, China	Mar 2023

SOFTWARE

1. **Yifei Jiao**, et al. The SPHSOL code, which is a parallel smoothed particle hydrodynamics C++ solver for simulating the impact process in planetary science. <https://sphsol-tutorial.readthedocs.io>

HONORS AND AWARDS

Outstanding Doctoral Dissertation Award, Tsinghua University	2025
Outstanding Doctoral Graduate Award, Beijing Municipality	2025
Tsinghua Top Grade Scholarship (10 best students per year) , Tsinghua University	2024

Last updated: September, 2025

China National Scholarship, China	2024
Outstanding Paper Award, Young Scientist Forum of Planetary Science, China	2023
The First/Second Prize Scholarship, Tsinghua University	2022, 2023
China Trajectory Optimization Competition, 2nd Place, China	2020
Air Cargo Challenge, 4th Place, Germany	2019
Outstanding Academic Scholarship, Tsinghua University	2017, 2018, 2019

STUDENT MENTORING

Yixuan Wu, Yifan He (Tsinghua University)	2025
Likun Song (Tongji University)	2025
Tamier Baoyin (Dartmouth College)	2024

SERVICES

Referee for Nature Communications, Space: Science & Technology, Earth and Planetary Physics