

Yifei Jiao

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

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ABOUT ME

I am Yifei Jiao (he/him), a postdoc researcher at University of California Santa Cruz and Tsinghua University. My research interests are focused on **the collisional and dynamical evolution of small bodies and moons**, 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

PhD with Prof. Hexi Baoyin

Numerical modeling of impact ejection and collisional evolution of asteroids

Sep 2020–Jun 2025

Tsinghua University, Beijing, China

Bachelor of Engineering

Sep 2016–Jun 2020

EXPERIENCE

University of California, Santa Cruz, CA, USA

Postdoctoral Research Fellow with Prof. Francis Nimmo

Sep 2025–now

Shanghai Astronomical Observatory, Shanghai, China

Visiting Scholar with Prof. Xian Shi

Aug 2025

University of Tokyo & NAOJ, Tokyo, Japan

Visiting Student with Prof. Seiji Sugita

May 2025

LPL, University of Arizona, Tucson, AZ, USA

Visiting Student with Prof. Erik Asphaug

Jan–Jun 2024

Tsinghua University, Beijing, China

Teaching Assistant for Theoretical Mechanics

2020, 2021

GRANTS

PI of National Natural Science Foundation of China (\$42.1k)

Impact dynamics and collisional evolution of highly porous asteroids

2024–2025

Youth Talent Support Program of China Association for Science and Technology (\$5.6k)

Host by Chinese Society of Space Research

2024–2025

HONORS AND AWARDS

Excellent Doctoral Dissertation Award, Chinese Society of Astronautics

2025

Excellent Doctoral Dissertation Award, Tsinghua University

2025

Excellent Doctoral Graduate Award, Beijing Municipality

2025

Tsinghua Top Grade Scholarship (10 best students per year), Tsinghua University

2024

China National Scholarship, China	2024
Tsinghua Short-term Study Abroad Scholarship, Tsinghua University	2023
Excellent 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
Excellent Academic Scholarship, Tsinghua University	2017, 2018, 2019

PUBLICATIONS

1. **Y. Jiao**, B. Cheng, W.-Y. Dai, E. Asphaug, M. Jutzi, S. Raducan, X. Yan, Y. Yu, H. Baoyin. *Giant craters on 253 Mathilde revealing the cohesive porous interior of carbonaceous parent bodies*. *Nature Geoscience* (under review)
2. **Y. Jiao**, B. Cheng, H. Baoyin. *Probing the Moon from future asteroid impacts: a review*. *Science China Technological Sciences* (under review)
3. **Y. Jiao**, B. Cheng, Y. Huang, E. Asphaug, B. Gladman, R. Malhotra, P. Michel, Y. Yu, H. Baoyin. *Asteroid (469219) Kamo'alewa's journey from the lunar Giordano Bruno crater to Earth 1:1 resonance*. *Nature Astronomy* (2024)
4. **Y. Jiao**, X. Yan, B. Cheng, H. Baoyin. *SPH-DEM modeling of hypervelocity impacts on rubble-pile asteroids*. *Monthly Notices of the Royal Astronomical Society* (2023)
5. **Y. Jiao**, B. Cheng, H. Baoyin. *Optimal kinetic-impact geometry for asteroid deflection exploiting Delta-V hodograph*. *Journal of Guidance, Control, and Dynamics* (2022)
6. Y. Wu, **Y. Jiao***, W.-Y. Dai, Y. Huang, Z. Liu, B. Cheng, H. Baoyin, J. Li. *Detectability of Lunar-Origin Asteroids in the LSST Era*. *The Astrophysical Journal* (under review)
7. T. Baoyin, **Y. Jiao***, B. Cheng. *Predicting the collision history of basaltic asteroids from parametrized shapes with an artificial neural network*. *Monthly Notices of the Royal Astronomical Society* (2025)
8. W.-Y. Dai, B. Cheng, Y. Huang, **Y. Jiao**, W.-H. Zhou, K.-Y. Ren, H. Agrusa, S. Jacobson, E. Kokubo, S. Charnoz, Y. Yu, H. Baoyin, J. Li. *Diverse configurations of binary asteroids explained by multi-generation satellites*. *Nature Communications* (under review)
9. N. Zhang, Z. Zhang, **Y. Jiao**, H. Baoyin. *Multi-trajectory combination for multiple ground target observation by maneuvering on-orbit satellites*. *IEEE Transactions on Aerospace and Electronic Systems* (2023)
10. Z. Zhang, N. Zhang, **Y. Jiao**, H. Baoyin, J. 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

Last updated: November, 2025

Seminar, LPL, University of Arizona, Tucson, AZ, USA
Young Scientist Forum of Planetary Science, Sanya, China

Apr 2024
Mar 2023

SOFTWARE

1. **Y. 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>

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
Co-organizer of UCSC Earth & Planetary Science IGPP Seminar Winter 2026