

# 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

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

## EXPERIENCE

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

## GRANTS

<b>National Natural Science Foundation of China (\$42.8k)</b> <i>Impact dynamics and collisional evolution of highly porous asteroids</i>	2024–2025
<b>Youth Talent Support Program of China Association for Science and Technology (\$5.7k)</b> <i>Host by Chinese Society of Space Research</i>	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
<b>Tsinghua Top Grade Scholarship (10 best students per year)</b> , Tsinghua University	2024

China National Scholarship, China	2024
Excellent Paper Award, Young Scientist Forum of Planetary Science, China	2023
Tsinghua Short-term Study Abroad Scholarship, Tsinghua University	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 Technology & Innovation Scholarship, Tsinghua University	2019
Excellent Academic Scholarship, Tsinghua University	2017, 2018, 2019

## FIRST/CORR\*-AUTHOR PUBLICATIONS

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1. **Y. Jiao**, B. Cheng, W. 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'oalewa'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. He, Y. Wu, **Y. Jiao\***, W. Dai, B. Cheng, H. Baoyin. *Observation timelines for the potential lunar impact of asteroid 2024 YR4. (in prep.)*
7. Y. Wu, **Y. Jiao\***, W. Dai, Y. Huang, Z. Liu, B. Cheng, H. Baoyin, J. Li. *Detectability of lunar-origin asteroids in the LSST era. The Astrophysical Journal (accepted)*
8. 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)*

## CO-AUTHOR PUBLICATIONS

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1. W. Dai, B. Cheng, Y. Huang, **Y. Jiao**, W. Zhou, K. 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)*
2. 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)*
3. 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

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Planetary Group Talk, University of California Santa Cruz, CA, USA	Oct 2025
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

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1. **Y. Jiao**, et al. The SPHSOL code, which is a parallel smooth particle hydrodynamics C++ solver for simulating impact process and tidal response of planetary bodies. <https://sphsol-tutorial.readthedocs.io>

## STUDENT MENTORING

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Iain Van Kleeck (University of California Santa Cruz)	2025
Yixuan Wu, Yifan He (Tsinghua University)	2025
Likun Song (Tongji University)	2025
Tamier Baoyin (Dartmouth College)	2024

## SERVICES

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

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