Dr. Fangzhou Jiang

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Education and positions

Feb 2023–now	Assistant Professor, **Peking University**
Jan 2020–Jan 2023	Troesh Scholar at **Caltech** and Theory Fellow at the **Carnegie Observatories** Faculty hosts: Prof. Phillip Hopkins (Caltech), Dr. Andrew Benson (Carnegie)
Oct 2016–Dec 2019	PBC Fellow, **Hebrew University of Jerusalem** Faculty host: Prof. Avishai Dekel
July 2016	PhD in Astronomy, **Yale University** Advisor: Prof. Frank van den Bosch
Jun 2010	BSc, **Nanjing University**, Kuang Yaming Honors School

Publication [ADS][Google Scholar] – list of leading author publications on next page

>80 papers, > 3600 citations, h-index=34; **27** first/corresponding-author papers, **6** of which have each received more than **100** citations

Grants and Awards

2025	PI of National Key R&D Program of China (2025YFA1614103) subproject 300K CNY
2025	PI of NSFC General Program No.12473007 520K CNY
2025(23)	PI of Beijing Municipal Natural Science Foundation programs QY25097, QY23018 100K CNY
2024	ACAMAR Visiting Fellowship (International Center for Radio Astronomy Research)
2024	First Prize, Peking University Young Faculty Teaching Skills Competition
2023	Peking University Boya Young Fellow
2020	Caltech Troesh Postdoctoral Scholar
2018	Rosenblem Prize for postdoctoral research in astrophysics, Hebrew University
2017	The Planning and Budgeting Committee (PBC) Fellowship, Israel
2018	Brouwer Prize for Outstanding PhD thesis, Yale University
2015	Chinese Government Award for Outstanding Students Abroad, China Scholarship Council
2010	Pan Xueping Scholarship, Nanjing University (top-tier undergraduate scholarship)
2008	Goldman Sachs Global Leaders Award (IIE and Goldman Sachs Foundation)

Professional Services

Referee for journals: Nature Astronomy, Science Bulletin, MNRAS, ApJ, ApJL, A&A, and JCAP
Referee for funding agencies: NSF, NSFC
Leading organizer of Peking University KIAA/DoA Colloquium Series (2025Fall-2027Spring)
Leading organizer of Peking University Galaxy-Club Weekly Meetings (2023-now
Leading organizer of Peking University KIAA/DoA Career Development Seminar Series (2024-now)
Co-organizer of Caltech TAPIR seminars (2021-2022)
Leading organizer of Hebrew University CosmoLunch seminars (2017-2019)

Software Development

`SatGen` – semi-analytic satellite galaxy generator [GitHub]
`IsothermalStitching` – semi-analytic model of self-interacting dark-matter halo [GitHub]
`MorphDecom` – kinematic galaxy morphological decomposition [GitHub]

PUBLICATIONS – showing 1st/corresponding-author papers – See [ADS library] for a full list

[27] *Tidal Evolution of Satellite Dwarf Galaxies. I. Tidal Tracks of Stellar Mass and Structure*
He F., **Jiang F.***(corresponding), 2026, arXiv:2611.04208 [ADS Link]

[26] *Ubiquitous nuclear disks and bars embedded in massive galaxies in the cosmic morning*
Luo J., **Jiang F.***(corresponding), Liang J. et al, 2026, arXiv:2604.27460 [ADS Link]

[25] *A Dark-matter Origin of Little Red Dots: Early Seeding and Super-Bondi Accretion*
Gu H., **Jiang F.***(corresponding), Chen X.(corresponding) et al. arXiv:2609.16122 [ADS Link]

[24] *Universal Dark-matter Density Profiles of Cosmic Filaments*
Xu P., **Jiang F.***(corresponding), Hasan F. et al, 2026, ApJL, 1009, L26 [ADS Link]

[23] *A 3D Chemodynamical Census of Inner-Galaxy Metal-poor Giants to [Fe/H]* ~ -3.5
Sun S., Huang Y.*(corresponding), **Jiang F.***(corresponding), Zhang H.(corresponding) et al., 2026, ApJL, 1000, L27, [ADS Link]

[22] *Halo assembly bias in the early Universe: a clustering probe of the origin of the Little Red Dots*
Wang Z., **Jiang F.***(corresppponding), Zheng H., Sheng X. et al., 2026, MNRAS, 552, stag1712 [ADS Link]

[21] *Controlled Experiments on Dark-Matter Halo Structure and Galaxy Morphology I: What Sets Galaxy Sizes?*
Sun G., **Jiang F.***(corresponding), Wang J., 2026, MNRAS, 549, stag997 [ADS Link] [**Bilibili video coverage**]

[20] *An Enhanced Isothermal Jeans Approach to Constraining Dark Matter Self-Interactions from Galactic Kinematics*
Jia Z., **Jiang F.***(corresponding), Li S. et al., MNRAS, 549, stag969 [ADS Link]

[19] *Non-Equilibrium Relativistic Core Collapse of Self-Interacting Dark Matter Halos – Limits On Seed Black Hole Mass*
Gu H., **Jiang F.***(corresponding), Chen X.(corresponding) et al. PRD, 113, 103038 [ADS Link]

[18] *HIDES – I. The population and diversity of HI-rich 'dark' galaxies in the Hestia and Auriga simulations*
Zheng H.*(corresponding), **Jiang F.***(corresponding), Liao S. et al., ApJ, 1004, 79 [ADS Link]

[17] *Connection between galaxy morphology and dark-matter halo structure II: predicting disk structure from dark-matter halo properties*
Liang J., **Jiang F.**, Mo H. et al, 2026, ApJ, 1003, 12 [ADS Link]

[16] *Formation and Environmental Context of Giant Bulgeless Disk Galaxies in the Early Universe: Insights from Cosmological Simulations*
Jiang F., Liang J., Jin B., Gao Z. et al, 2025, Nature Astronomy submitted, under revision, arXiv:2504.01070 [ADS Link]

[15] *Formation of the Little Red Dots from the Core-collapse of Self-interacting Dark Matter Halos*
Jiang F., Jia Z., Zheng H. et al, 2025, ApJL, 996, L19 [ADS Link][**AAS Nova Research Highlights**]

[14] *Ultra-diffuse galaxies in the EAGLE simulation*
Zheng H., Liao S.*(corresponding), Gao L.*(corresponding), **Jiang F.***(corresponding), ApJ, 997, 15 [ADS Link]

[13] *Connection between galaxy morphology and dark-matter halo structure I: a running threshold for thin discs and size predictors from the dark sector*
Liang J., **Jiang F.***(corresponding), Mo H. et al, 2025, MNRAS, 541, 2304, arXiv:2403.14749 [ADS Link]

Publications (continued) – showing 1st/corresponding-author papers – See [ADS library] for a full list

[12] *Constraining SIDM cross section models with a joint analysis of galaxies and clusters*
Yang S.*(corresponding), **Jiang F.***(corresponding), Benson A. et al, 2024, MNRAS, 533, 4007, arXiv:2305.05067 [ADS Link]

[11] *Constrain the Dark Matter Distribution of Ultra-diffuse Galaxies with Globular-Cluster Mass Segregation: A Case Study with NGC5846-UDG1*
Liang J., **Jiang F.***(corresponding), Danieli S. et al., 2024, ApJ, 964, 53, arXiv:2304.14431 [ADS Link]

[10] *A semi-analytic study of self-interacting dark-matter haloes with baryons*
Jiang F., Benson A., Hopkins P. F. et al., 2023, MNRAS, 521, 4630 [ADS Link]

[9] *SatGen: a semi-analytical satellite galaxy generator – I. The model and its application to Local-Group satellite statistics*
Jiang F., Dekel A., Freundlich J., van den Bosch F. C., Green S. B., Hopkins P. F., Benson A., Du X., 2021, MNRAS, 502, 621 [ADS Link] >100 citations

[8] *Formation of ultra-diffuse galaxies in the field and in galaxy groups*
Jiang F., Dekel A., Freundlich J., Romanowsky A.J., Dutton A., Macciò A., Di Cintio A., 2019, MNRAS, 487, 5272 [ADS Link] >150 citations

[7] *Is the dark-matter halo spin a predictor of galaxy spin and size?*
Jiang F., Dekel A., Kneller O., Lapiner S., Cerverino D., Primack J., Faber S., et al. 2019, MNRAS, 488, 4801 [ADS Link] >150 citations

[6] *Statistics of Dark Matter Substructure: III. Halo-to-Halo Variance*
Jiang F. & van den Bosch F.C., 2017, MNRAS, 472, 657 [ADS Link]

[5] *Comprehensive Assessment of the Too-Big-to-Fail Problem*
Jiang F. & van den Bosch F.C., 2015, MNRAS, 453, 3575 [ADS Link]

[4] *Statistics of Dark Matter Substructure: I. Model and Universal Fitting Functions*
Jiang F. & van den Bosch F.C., 2016, MNRAS, 458, 2848 [Link] >150 citations

[3] *Generating merger trees for dark matter halos: a comparison of methods*
Jiang F. & van den Bosch F.C., 2014, MNRAS, 440, 193 [ADS Link] >100 citations

[2] *A Nearby Analog of $z\sim2$ Compact Quiescent Galaxies with a Rotating Disk*
Jiang F., van Dokkum P., Bezanson R., Franx M., 2012, ApJL, 749, L10 [ADS Link]

[1] *Surface photometry & radial color gradients of nearby luminous early-type galaxies in SDSS Stripe 82*
Jiang F., Huang S., Gu Q., 2011, RAA, 11, 309 [ADS Link]

PRESENTATIONS – IN LAST ∼3 YEARS

22/10/2026	Workshop invited talk	Dynamic Cosmic Structure, Hangzhou "*From Cramped Youth to Spacious Middle Age: The evolving size ratio between galaxies and their dark-matter halos – and why the Little Red Dots must live in small halos*"
30/09/2026	Workshop invited talk	11th *News from the Dark* Workshop, IPhT, CEA-Saclay "*Pros and Cons of SIDM*"
03/8/2026	Workshop invited talk	2026 Santa Cruz Galaxy Workshop, University of California, Santa Cruz "*From Cramped Youth to Spacious Middle Age: The evolving size ratio between galaxies and their dark-matter halos – and why the Little Red Dots must live in small halos* "
16/07/2026	Seminar invited talk	University of Western Australia "*Connection between galaxy morphology and host dark-matter halo — the dark sector of disk formation and extreme galaxies*"
08/01/2026	Seminar invited talk	Zhejiang University "*Connection between galaxy morphology and host dark-matter halo — the dark sector of disk formation and extreme galaxies*"
12/12/2025	Workshop	TeV Workshop, Beijing "*Formation of the Little Red Dots from the Core-collapse of SIDM Halos*"
22/09/2025	Workshop	12th Sino-German workshop, Chengdu "*The DM halo conditions for forming extreme systems*"
05/08/2025	Workshop	University of California, Santa Cruz "*Formation of the Little Red Dots from the Core-collapse of SIDM Halos*" [Video]
17/06/2025	Workshop	Valencia, Spain "*Formation of the Little Red Dots from the Core-collapse of SIDM Halos*"
31/03/2025	Seminar invited talk	CGI Seminar, University of California, Santa Cruz "*Connection between galaxy morphology and host dark-matter halo — the dark sector of disk formation and extreme galaxies*"
12/02/2025	Seminar	University of California, Riverside "*Cosmological Small-Scale Puzzles – solutions within ΛCDM and in SIDM*"
08/25/2024	GalPhases24 Conference	Strasbourg, France "*Addressing Small-Scale Puzzles with CDM and SIDM*"
29/07/2024	Workshop	University of California, Santa Cruz "*Connection between galaxy morphology and host dark-matter halo structures — the halo conditions for disk formation* " [Video]
07/15/2024	invited talk	Kavli Assembly Meeting "*Galaxy-Halo Connection & Near-Field Cosmology with Numerical and Semi-Analytical Methods*"
03/07/2024	Colloquium	Tsinghua, Beijing, China "*Galaxy-Halo Connection & Near-Field Cosmology with Numerical and Semi-Analytical Methods*"
12/05/2023	Colloquium	NAOC, Beijing, China "*Galaxy-Halo Connection & Near-Field Cosmology with Numerical and Semi-Analytical Methods*"

Teaching

2025-now, Spring	Peking		Dark Matter in the Universe (undergraduate course)
2025-now, Spring	Peking		Galaxy Physics (graduate course)
2025, Apr	UCAS		Galaxy Formation Theory (graduate seminar)
2023, Fall	Peking		Galaxy Physics (graduate course)
2023/26, Fall	Peking		Writing in Astronomy (graduate course)
2023, Summer	Nanjing		Galaxy Formation Theory (graduate seminar)
2017-2022 Spring	HUJI	lecturer	Advanced Cosmology (graduate course)
2017-2019 Spring	HUJI	advisor	Astrophysics Seminar (undergraduate research training course)
2014, Spring	Yale	TA	ASTR 210: Stellar Astrophysics
2012, Fall	Yale	TA	ASTR 110: Planets and Stars
2011, Fall	Yale	TA	ASTR 130: Origins and the Search for Life in the Universe
2011, Spring	Yale	TA	ASTR 120: Galaxies and the Universe
2010, Fall	Yale	TA	ASTR 255/PHYS 295: Research Methods in Astrophysics

Academic References

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