

Tianjun Gan

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EDUCATION

2023.06 – 2025.02 Research Associate, Tsinghua University, Beijing, China
2018.09 – 2023.06 PhD in Astronomy, Tsinghua University, Beijing, China
2014.09 – 2018.06 BS in Physics, Zhejiang University, Zhejiang, China

RESEARCH INTERESTS

Formation and evolution of planets around M-type stars;
Planet atmospheres through high-resolution transmission spectroscopy;
Characterization and population statistics of BDs and low-mass M dwarfs;
Connection between stellar abundance pattern and planet formation, esp. solar twins;
Transiting planet detection, follow-up and characterization.

RESEARCH PROGRAMS

GPASS (Giant Planets Around Small Stars) program, Lead	2019-Present;
TESS low mass stellar companion program, Lead	2019-Present;
LCO Key Followup Program for TESS (PI: Avi Shporer), Member	2019-Present;
Magellan TESS Survey (PI: Johanna Teske), Member	2020-Present;
TESS Follow-up Observing Program (TFOP), Member	2019-Present.

OBSERVING PROPOSALS & EXPERIENCE

As PI or Science PI:

2025A	4.8 hours on the CFHT (SPIRou); spectroscopy– <i>First obliquity measurement for an M dwarf hosting a very-low-mass star</i>
2024B	3 hours on the CAHA (CARMENES); spectroscopy– <i>Dawn of the Gaia era: validation for three astrometric planet candidates</i>
2024B	6 hours on the CFHT (SPIRou); spectroscopy– <i>Mass determination for a rare warm Jupiter candidate orbiting an M star</i>
2024A DDT	6.0 hours on the CFHT (SPIRou); spectroscopy– <i>RV monitoring for the first hot+warm Jupiter system around an M dwarf that favors gravitational instability models</i>
2024A DDT	1.5 hours on the CFHT (SPIRou); spectroscopy– <i>RV confirmation for a hot Jupiter candidate around an M4.5V dwarf that challenges core accretion models</i>
2024A	7.5 hours on the CFHT (SPIRou); spectroscopy– <i>Mass determination of two transiting warm Jupiter candidates around M dwarfs</i>
2023B FT	5.3 hours on the Gemini-North (MAROON-X); spectroscopy– <i>First attempt to measure the obliquity of an M dwarf hosting a hot Jupiter</i>

2023B	9 hours on the AAT (Veloce); spectroscopy– <i>Recon spectroscopic observations for TESS planet candidates around metal-poor stars</i>
2023B	15 hours on the IRTF (SpeX); spectroscopy– <i>Homogeneous stellar characterization for M dwarfs with confirmed giant planets</i>
2023A	1.5 night on the CFHT (SPIRou); spectroscopy– <i>Mass measurement of a planet candidate that challenges planet formation models</i>
2022B	1.5 night on the CFHT (SPIRou); spectroscopy– <i>Mass measurement of a hot Jupiter around an M dwarf delivered by TESS</i>
2022B	1 night on the Xinglong 2.16m telescope; spectroscopy – <i>Rossiter-McLaughlin observation for TOI-1830: An eccentric low mass stellar companion around a young star</i>
2022A	60 hours on SMARTS 1.5-m Telescope (CHIRON); spectroscopy – <i>Investigating the solar depletion pattern with TESS solar analogs</i>
2021A	2 night on the CFHT (SPIRou); spectroscopy – <i>Mass determination for a planet around an M dwarf close to the radius valley</i>
2021A	3 nights on the LCOGT network (1m0 Sinistro); photometry – <i>Follow-up observations for TESS planet candidates</i>
2020A	1 night on the CFHT (SPIRou); spectroscopy – <i>Confirmation of the sixth transiting giant planet around an M dwarf</i>
2020A	7.5 nights on the LCOGT network (1m0 Sinistro); photometry – <i>Photometric followup observations for TESS hot Jupiters around M dwarfs</i>
As Co-I:	
2022A	4 nights on LCOGT network (1m0 NRES); spectroscopy – <i>Radial Velocity Follow-ups of TESS Discovered Small Planets to Search for Additional Gas Giants</i> (PI: Xinyan Hua)
2020A-2021B	10/800/400 hours on LCOGT 2m0/1m0/0m4 telescopes; photometry – <i>Coordinated photometric follow-up of TESS candidates</i> (PI: Karen A. Collins)
2020-now	100/1000/800 hours each semester on LCOGT 2m0/1m0/0m4 telescopes; photometry+spectroscopy – <i>Standing on the shoulders of the network: Follow-up of TESS planet candidates with LCO</i> (key proposal, PI: Avi Shporer)
2019B	10/180/360 hours on LCOGT 2m0/1m0/0m4 telescopes; photometry – <i>Coordinated photometric follow-up of TESS candidates</i> (PI: Markus Rabus)

PUBLICATION LIST

12 as the first/second author (11 refereed)

*** = student co-supervised**

Leading Author: [ADS Library](#)

1. **Gan, T.** & Theissen, C., et al., *Metallicity Dependence of Giant Planets around M Dwarfs*, 2025, *ApJS*, 276, 47

2. **Gan, T.** & Wang, X., et al., *The Aligned Orbit of a Hot Jupiter around the M Dwarf TOI-4201*, 2024, *ApJL*, 969, 24
3. **Gan, T.** & Guo, K., et al., *Relative Occurrence Rate Between Hot and Cold Jupiters as an Indicator to Probe Planet Migration*, 2024, *ApJ*, 967, 74
4. **Gan, T.**, *Gaia Astrometry and MIKE+PFS Doppler Data Joint Analysis Reveals that HD 175167b is a Massive Cold Jupiter*, 2023, *RNAAS*, 7, 226
5. **Gan, T.** & Cadieux, C., et al., *A massive hot Jupiter orbiting a metal-rich early-M star discovered in the TESS full frame images*, 2023, *AJ*, 166, 165
6. Lin, Z. (*), **Gan T.**, et al., *One high mass brown dwarf and two objects near the hydrogen burning mass limit*, 2023, *MNRAS*, 523, 6162
7. **Gan, T.** & Wang, X. S., et al., *Occurrence rate of hot Jupiters around early-type M dwarfs based on TESS Primary Mission*, 2023, *AJ*, 165, 17
8. **Gan, T.** & Soubkiou, A., et al., *TESS discovery of a sub-Neptune orbiting a mid-M dwarf TOI-2136*, 2022, *MNRAS*, 514, 4120
9. **Gan, T.** & Lin, Z. (*), et al., *TOI-530b: A giant planet transiting an M dwarf detected by TESS*, 2022, *MNRAS*, 511, 83
10. **Gan, T.** & Bedell, M., et al., *HD 183579b: a warm sub-Neptune transiting a solar twin detected by TESS*, 2021, *MNRAS*, 507, 2220
11. **Gan, T.** & Wang, X. S., et al., *Revisiting the HD 21749 planetary system with stellar activity modelling*, 2021, *MNRAS*, 501, 6042
12. **Gan, T.** & Shporer, A., et al., *LHS 1815b: The First Thick-disk Planet Detected by TESS*, 2020, *AJ*, 159, 160

Selected Contributed Work: (see the full list of 78 publications here: [ADS Library](#))

1. Sun, Q., Wang, X. S., **Gan T.**, et al., *Planets Around Solar Twins/Analogues (PASTA) I.: High precision stellar chemical abundance for 17 planet-hosting stars and the condensation temperature trend*, 2025, *ApJ*, 980, 179
2. Yang, H., Zang, W., **Gan T.**, et al., *How Rare Are TESS Free-floating Planets*, 2024, *ApJL*, 972, 12
3. Hua, X., Wang, X. S., Teske, Johanna K., **Gan T.**, et al., *A Transiting Super-Earth in the Radius Valley and an Outer Planet Candidate Around HD 307842*, 2023, *AJ*, 166, 32
4. Sun, Q., Wang, X. S., **Gan T.**, et al., *A Search for Exoplanets in Open Clusters and Young Associations based on TESS Objects of Interest*, 2022, *RAA*, 22, 7
5. Teske, J., Wang, X. S., Wolfgang, A., **Gan, T.**, et al., *The Magellan-TESS Survey. I. Survey Description and Midsurvey Results*, 2021, *ApJS*, 256, 33
6. Boley K., et al. (incl. **Gan, T.**), *Searching For Transiting Planets Around Halo Stars. II. Constraining the Occurrence Rate of Hot Jupiters*, 2021, *AJ*, 162, 85
7. Dong J., et al. (incl. **Gan, T.**), *Warm Jupiters in TESS Full-frame Images: A Catalog and Observed Eccentricity Distribution for Year 1*, 2021, *ApJS*, 255, 6
8. Armstrong D., et al. (incl. **Gan, T.**), *A remnant planetary core in the hot-Neptune desert*, 2020, *Nature*, 583, 39
9. Günther M., et al. (incl. **Gan, T.**), *A super-Earth and two sub-Neptunes transiting the nearby and quiet M dwarf TOI-270*, 2019, *Nature*, 3, 1099
10. Vanderspek R., et al. (incl. **Gan, T.**), *TESS Discovery of an Ultra-short-period Planet around the Nearby M Dwarf LHS 3844*, 2019, *ApJ*, 871, 24

SELECTED SEMINAR AND CONFERENCE TALKS, POSTERS

- 2024.11 High Precision Astrometry Post-Gaia (Contributed Talk)
- 2024.07 TESS Science Conference III (Poster)
- 2024.06 Exoplanet V (Poster)
- 2023.12 Open Problems in the Astrophysics of Gas Giants (Contributed Talk)
- 2023.10 Exoplanet and Habitable Worlds seminar at Penn State (Seminar)
- 2023.10 TESS Science Talk at MIT (Seminar)
- 2023.10 SPLAT talk at University of Hawaii (Seminar)
- 2023.08 Asia Oceania Geosciences Society 2023 (Contributed Talk)
- 2023.04 2023 International Conference of Deep Space Sciences (Contributed Talk)
- 2023.03 The 5th Youth Planet Conference (Contributed Talk)
- 2022.12 Earth 2.0 (ET) Mission Science Seminar (Invited Talk)
- 2022.11 Caltech: *The mysteries of giant planets around M dwarfs* (Group Meeting Talk)
- 2022.10 TESS Science Team Meeting #29 (Contributed Talk)
- 2022.07 Cool Stars 21 conference (Poster)
- 2022.01 CFHT/SPIRou Science Seminars (Invited Talk)
- 2021.12 The China's Telescope Access Program meeting (Virtual)
- 2021.12 Chinese Astronomical Society Meeting (Contributed Talk)
- 2021.08 TESS Science Conference II (Contributed Talk)
- 2021.06 Chinese Planetary Science Society Annual Conference (Contributed Talk)
- 2020.12 Earth 2.0 (ET) Mission workshop (Invited Talk)
- 2020.12 Earth 2.0 (ET) Transit Space Mission Science Meeting (Invited Talk)

TEACHING AND MENTORING EXPERIENCE

- 2022 Spring TA for Observational Astronomy (Instructor: Prof. Xuesong Wang)
- 2020 & 2021 Fall TA for The Beauty of the Universe (Instructor: Prof. Shude Mao)
- 2022 Ximing Xu, Undergraduate at Western University, Canada; TFOP member.
- 2020 – 2022 Zitao Lin, Undergraduate at Tsinghua University; Now PhD candidate at Tsinghua University; TFOP member.
- 2020 – 2021 Gavin Wang, High school student from Tsinghua International School and Stanford Online High School; Now undergraduate student at Johns Hopkins University; TFOP member.

PROFESSIONAL SERVICES

- Referee for A&A, AJ, ApJ.
- Reviewer for CFHT proposals
- Reviewer for VLT proposals
- Reviewer for Gemini FT proposals

AWARDS

- 2024 Trottier Postdoctoral Fellowship at Université de Montréal
- 2024 Sullivan Postdoctoral Fellowship at Indiana University (declined)

2023 VIDA Postdoctoral Fellowship at Vanderbilt University (declined)
 2023 Jiang Nanxiang Scholarship, Tsinghua University
 2022 Second-class Scholarship of China Astronomical Society
 2021 National Scholarship, Tsinghua University (*Highest Student Award*)
 2020 First-class Academic Scholarship, Tsinghua University
 2019 First-class AMD Scholarship, Tsinghua University
 2017 Second-class Academic Scholarship, Zhejiang University
 2016 National Scholarship, Zhejiang University (*Highest Student Award*)
 2015 National Encouragement Scholarship, Zhejiang University
 2015 First-class Academic Scholarship, Zhejiang University

VISITING EXPERIENCE

- 2023.12 – 2024.06: Visiting Postdoc, host: Enric Pallé, Instituto de Astrofísica de Canarias (IAC), E-38205 La Laguna, Tenerife, Spain
- 2019.10 – 2020.01: Visiting Student, host: Stephen Sackett, Observatories of the Carnegie Institution for Science, 813 Santa Barbara Street, Pasadena, CA 91101, USA