Tianjun Gan

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Education

2023.06 – Present	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 giant planets around M-type stars;
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:

2024A DDT	1.5 hours on the CFHT (SPIRou); spectroscopy– *RV confirmation for a hot Jupiter candidate around an M4.5V dwarf that challenges core accretion models*
2024A	7.5 hours on the CFHT (SPIRou); spectroscopy– *Mass determination of two transiting warm Jupiter candidates around M dwarfs*
2023B	5.3 hours on the Gemini-North (MAROON-X); spectroscopy– *First attempt to measure the obliquity of an M dwarf hosting a hot Jupiter*
2023B	9 hours on the AAT (Veloce); spectroscopy– *Recon spectroscopic observations for TESS planet candidates around metal-poor stars*
2023B	15 hours on the IRTF (SpeX); spectroscopy– *Homogeneous stellar characterization for M dwarfs with confirmed giant planets*
2023A	1.5 night on the CFHT (SPIRou); spectroscopy– *Mass measurement of a planet candidate that challenges planet formation models*
2022B	1.5 night on the CFHT (SPIRou); spectroscopy– *Mass measurement of a hot Jupiter around an M dwarf delivered by TESS*
2022B	1 night on the Xinglong 2.16m telescope; spectroscopy – *Rossiter-McLaughlin observation for TOI-1830: An eccentric low mass stellar companion around a young star*

2022A	60 hours on SMARTS 1.5-m Telescope (CHIRON); spectroscopy – *Investigating the solar depletion pattern with TESS solar analogs*
2021A	2 night on the CFHT (SPIRou); spectroscopy – *Mass determination for a planet around an M dwarf close to the radius valley*
2021A	3 nights on the LCOGT network (1m0 Sinistro); photometry – *Follow-up observations for TESS planet candidates*
2020A	1 night on the CFHT (SPIRou); spectroscopy – *Confirmation of the sixth transiting giant planet around an M dwarf*
2020A	7.5 nights on the LCOGT network (1m0 Sinistro); photometry – *Photometric followup observations for TESS hot Jupiters around M dwarfs*
As Co-I:	
2022A	4 nights on LCOGT network (1m0 NRES); spectroscopy – *Radial Velocity Follow-ups of TESS Discovered Small Planets to Search for Additional Gas Giants* (PI: Xinyan Hua)
2020A-2021B	10/800/400 hours on LCOGT 2m0/1m0/0m4 telescopes; photometry – *Coordinated photometric follow-up of TESS candidates* (PI: Karen A. Collins)
2020-now	100/1000/800 hours each semester on LCOGT 2m0/1m0/0m4 telescopes; photometry+spectroscopy – *Standing on the shoulders of the network: Follow-up of TESS planet candidates with LCO* (key proposal, PI: Avi Shporer)
2019B	10/180/360 hours on LCOGT 2m0/1m0/0m4 telescopes; photometry – *Coordinated photometric follow-up of TESS candidates* (PI: Markus Rabus)

Publication List

9 as the first/second author (8 refereed), 49 contributed work (45 refereed); 750+ total citations; h-index = 15;
*** = student co-supervised**

Leading Author: ADS Library

1. **Gan, T.**, *Gaia Astrometry and MIKE+PFS Doppler Data Joint Analysis Reveals that HD 175167b is a Massive Cold Jupiter*, 2023, RNAAS, 7, 226
2. **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
3. Lin, Z. **(*)**, **Gan T.**, et al., *One high mass brown dwarf and two objects near the hydrogen burning mass limit*, 2023, MNRAS, 523, 6162
4. **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
5. **Gan, T.** & Soubkiou, A., et al., *TESS discovery of a sub-Neptune orbiting a mid-M dwarf TOI-2136*, 2022, MNRAS, 514, 4120
6. **Gan, T.** & Lin, Z. **(*)**, et al., *TOI-530b: A giant planet transiting an M dwarf detected by TESS*, 2022, MNRAS, 511, 83

7. **Gan, T.** & Bedell, M., et al., *HD 183579b: a warm sub-Neptune transiting a solar twin detected by TESS*, 2021, MNRAS, 507, 2220
8. **Gan, T.** & Wang, X. S., et al., *Revisiting the HD 21749 planetary system with stellar activity modelling*, 2021, MNRAS, 501, 6042
9. **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 57 coauthored publications here: ADS Library)

1. 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
2. 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
3. Zhu W., et al. (incl. **Gan, T.**), *Two Candidate KH 15D-like Systems from the Zwicky Transient Facility*, 2022, AJ, 933, 21
4. 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
5. Hedges C., et al. (incl. **Gan, T.**), *TOI-2076 and TOI-1807: Two Young, Comoving Planetary Systems within 50 pc Identified by TESS that are Ideal Candidates for Further Follow Up*, 2021, AJ, 162, 54
6. 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
7. Rodriguez J., et al. (incl. **Gan, T.**), *TESS Delivers Five New Hot Giant Planets Orbiting Bright Stars from the Full-frame Images*, 2021, AJ, 161, 194
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

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 ApJ, AJ.
Reviewer for 2023 VLT proposal
Reviewer for 2023 Gemini FT proposal

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 – 2024.09 (expected): Visiting Astronomer, host: Enric Palle, Instituto de Astrofísica de Canarias (IAC), Spain
- 2019.10 – 2020.01: Visiting Student, host: Stephen Shectman, Observatories of the Carnegie Institution for Science, 813 Santa Barbara Street, Pasadena, CA 91101, USA