

# Tianjun Gan

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## EDUCATION

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2018.09 – 2023.09 (expected) PhD in Astronomy, Tsinghua University, Beijing, China  
2014.09 – 2018.06 BS in Physics, Zhejiang University, Zhejiang, China

## RESEARCH INTERESTS

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Formation, evolution and occurrence rate 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

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<b>TESS+LCO+CFHT M dwarf planet candidate follow-up program, Lead</b>	2019-Present;
<b>TESS+LCO low mass stellar companion program, Lead</b>	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

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### As PI or Science PI:

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

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

**\* = student co-supervised**

**Leading Author: [ADS Library](#)**

1. Lin, Z. (\*), **Gan T.**, et al., *One high mass brown dwarf and two objects near the hydrogen burning mass limit*, submitted to MNRAS, arXiv: [2210.13939](#)
2. **Gan, T.** & Wang, X. S., et al., *Occurrence rate of hot Jupiters around early-type M dwarfs based on TESS Primary Mission*, AJ in press, arXiv: [2210.08313](#)
3. **Gan, T.** & Soubkiou, A., et al., *TESS discovery of a sub-Neptune orbiting a mid-M dwarf TOI-2136*, 2022, [MNRAS](#), **514**, 4120
4. **Gan, T.** & Lin, Z. (\*), et al., *TOI-530b: A giant planet transiting an M dwarf detected by TESS*, 2022, [MNRAS](#), **511**, 83
5. **Gan, T.** & Bedell, M., et al., *HD 183579b: a warm sub-Neptune transiting a solar twin detected by TESS*, 2021, [MNRAS](#), **507**, 2220
6. **Gan, T.** & Wang, X. S., et al., *Revisiting the HD 21749 planetary system with stellar activity modelling*, 2021, [MNRAS](#), **501**, 6042
7. **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 49 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

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| 2022.12 | Earth 2.0 (ET) Science Seminar: <i>What can we learn from planets around M dwarfs</i> ( <b>Invited Talk</b> )                                   |
| 2022.01 | CFHT/SPIRou Science Seminars: <i>Investigating the mysteries of planets around M dwarfs with SPIRou</i> ( <b>Invited Talk</b> )                 |
| 2021.12 | The 6th China's Telescope Access Program User Meeting: <i>Radius valley of small planets around M dwarfs</i> ( <b>Invited Talk</b> )            |
| 2021.01 | The 5th China's Telescope Access Program User Meeting: <i>TESS follow-up observations with LCO and CFHT</i> ( <b>Invited Talk</b> )             |
| 2020.12 | Earth 2.0 (ET) Mission workshop: <i>Hands-on Section on the introduction of ground-based photometry and AstroImageJ</i> ( <b>Invited Talk</b> ) |
| 2020.12 | Earth 2.0 (ET) Transit Space Mission Science Meeting: <i>ET ground-based follow-up observations</i> ( <b>Invited Talk</b> )                     |
| 2022.11 | Caltech: <i>The mysteries of giant planets around M dwarfs</i> (Group Meeting Talk)   |
| 2022.10 | TESS Science Team Meeting #29: <i>TESS discoveries of giant planets around M dwarfs</i> (Contributed Talk)                                      |
| 2022.07 | Cool Stars 21 conference: <i>Statistics of hot Jupiters around M dwarfs with TESS</i> (Poster)  |
| 2021.12 | Chinese Astronomical Society Meeting: <i>Investigating the solar depletion pattern with TESS</i> (Contributed Talk)                             |
| 2021.08 | TESS Science Conference II: <i>Hunting for TESS planets around solar twins</i> (Contributed Talk)   |
| 2021.06 | Chinese Planetary Science Society Annual Conference: <i>Chasing special TESS planetary systems</i> (Contributed Talk)                           |

## TEACHING AND MENTORING EXPERIENCE

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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 – now        Ximing Xu, Undergraduate at Western University, Canada; TFOP member.  
 2020 – now        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.

## AWARDS

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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

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- 2019.10 – 2020.01: Visiting Student, host: Stephen Shectman, Observatories of the Carnegie Institution for Science, 813 Santa Barbara Street, Pasadena, CA 91101, USA