Yuan-Sen TING

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PROFESSIONAL APPOINTMENTS

Associate Professor in Astrophysics <i>The Ohio State University</i> Center for Cosmology and Astroparticle Physics, Faculty
Adjunct Scientist Max Planck Institute for Astronomy
 Honorary Associate Professor Associate Professor in Astrophysics & Computer Science Assistant Professor in Astrophysics & Computer Science Australian National University Visiting Professor - Johns Hopkins (2022), Universiti Malaya (2024-25), Tsinghua (2024-27) NASA Hubble Fellow, Carnegie-Princeton Fellow, Institute for Advanced Study Fellow Institute for Advanced Study, Princeton Princeton University Carnegie Institution for Science A unique four-way joint postdoctoral fellowship position at these three institutions
D, Astrophysics and Astronomy <i>Harvard University</i> Supervisor: Charlie Conroy Funded through a NASA Earth and Space Science Fellowship
aster of Arts, Astrophysics and Astronomy Harvard University
chelor (First-Class Honours, 2011) and Master of Science, Physics, minor in Mathematics National University of Singapore Supervisor: Ken Freeman (Australian National University) National Academy of Science Award for being the best Master student in Physics Institute of Physics Medal for being the best Honours year student in Physics Jurong Book Prize for being the best sophomore student in Physics

2011 Engineer's Degree (equivalent to Bachelor and Master of Engineering) *Ecole Polytechnique, France* Concurrent with the degrees from the National University of Singapore Funded through a full Eiffel scholarship

Research Interest

Our research group advances statistical inference in astronomy through the application of machine learning techniques, leveraging the wealth of data from large-scale surveys across various observational domains: spectroscopy (SDSS-V, DESI), astrometry (Gaia), photometry (Euclid, Roman, CSST), and time-series observations (LSST, TESS, PLATO). We investigate a wide range of topics spanning all cosmic scales, with a primary focus on galactic evolution, particularly our own Milky Way and its neighboring galaxies in the Local Group. Our work extends to refining inference techniques in stellar spectroscopy and asteroseismology by developing deep learning foundation models for both time series and spectroscopic data. Additionally, we are pushing the boundaries of cosmological parameter inference through simulation-based approaches utilizing state-of-the-art generative models, with applications in weak lensing and reionization studies. Beyond these areas, as co-founder of UniverseTBD and current leader of AstroMLab, our group is at the forefront of agentic research, harnessing the capabilities of large language models as research agents to autonomously formulate scientific hypotheses, design experiments, execute research, and interpret the results.

OTHER PROFESSIONAL EXPERIENCES

2020-present		Columnist <i>Sin Chew Daily, Malaysia</i> 星洲日报 Largest Chinese newspaper outside Greater China, with a daily circulation > one million	
2020-21 Chief Science Officer Hephaestus Analytical, London London-based start-up leveraging advanced data analytics to combat art forgeries			
Research	Income	AS THE PRINCIPAL INVESTIGATOR U\$3.5M in funding + U\$5.5M worth of computing	
2025	2025 NSF National Artificial Intelligence Research Resource Program		
2024 NSF Astronomy and Astrophysics Research Grants		tronomy and Astrophysics Research Grants	
2024	2024 Alexander von Humboldt Fellowship		
2023-25	Micros	oft Accelerating Foundation Models Academic Research Grant	
2023	OpenA	I Research Access Program	
2021	Austral	ian Research Council DECRA Fellowship	
2021	Interna	tional Astronomical Union Grant	
to host the first IAU Symposium in Southeast Asia since 1990			
2020 ANU Futures Scheme		utures Scheme	
2018 NASA Hubble Research Award		Hubble Research Award	
2017	Alexan	der von Humboldt Research Award (<i>relinquished</i>)	
2015	NASA I	Earth and Space Science Research Award	

2025	NVIDIA Academic Grant Program	26K GPU Hours
2024-25	Oak Ridge National Laboratory Frontier Nodes	460K GPU Hours
2020-24	Australian National Computational Infrastructure	112M CPU Hours

Awards and Honours

2024	Alexander von Humboldt Fellowship	
2021	Australian Research Council Discovery Early Career Researcher Award (DECRA)	
2019	AURA Future Leader by The Association of Universities for Research in Astronomy	
2018	NASA Hubble Fellowship	
2017	Institute for Advanced Study Fellowship	
2017	Carnegie-Princeton Fellowship	
2017	CCAPP Price Prize in Cosmology and AstroParticle Physics	
2016	Selected to attend the Lindau Meeting of Nobel Laureates	
2015	NASA Earth and Space Science Fellowship	
2014	Malaysian Perdana Scholar Award	
2005	Australian Mathematics Competition Gold Medal 1/10,000 participants from >8 countries	
2005	Top 10 in both Mathematics and Computer Science Nationwide, Unified Examination Certificate	

Refereed Articles

Total refereed publications: 211

This includes 1 in Nature, 3 in Nature Astronomy and 1 in Nature's Scientific Report and 9 in ICML workshop (with 2 workshop spotlight), as well as 4 NeurIPS workshop papers

83 papers as first/joint first (28) or supervising author, and 24 other papers as second/third author These are referred to as "key role" papers, comprising half (107/211) of my total publications.

Total citations: 9300 3500 citations are from key role papers

h-index: 51 Out of which, the h-index from key role papers is 33

m-index = 4.1

This is calculated as h-index divided by the years since the first publication. An m-index value of 3 is considered to characterize truly unique individuals, according to Hirsch 2005

ACADEMIC PRESENTATION

On average 45 presentations per year

Departmental colloquia/seminars: a career total of 211 talks

including 54 invited departmental colloquia + two-thirds (138/211) were invited talks Invited departmental colloquia includes Yale, MIT, Tokyo U., Tsinghua, Peking U., Max Planck,

EPFL, UToronto, Georgia Tech, UTAustin, OSU, UBC, Melbourne, Hawaii, Penn State, Maryland

Conferences: a career total of 78 presentations, of which two-thirds (45/78) were invited

Research Highlights

Works from students and postdocs whom I supervised are indicated with *

Machine Learning

Agentic AI Systems for Astronomy

Pioneered autonomous discovery using real astronomical data through multi-agent LLM collaboration; Developed the AstroSage and AstroLLaMA series, the first astronomy-specialized large language model. *Sun**, YST+, 2024b, 2024a | YST & AstroMLab, 2024 | *Nguyen**, YST+ 2023

Beyond Field-Level Inference with Graph Neural Networks and Point Cloud Generative Models Advanced cosmological and galactic inferences using graph and point cloud generative deep learning models Lee+ 2024 | YST & Sharma^{*}, ICML W, 2023 | Tang^{*} & YST, ICML W, 2022 (ICML spotlight talk)

Physics-Inspired Neural Networks

Developed neural network-based solvers for PDEs to determine gravitational potentials and CGM properties. Green, YST & Kamdar*, 2023 | Nguyen, YST+, NeurIPS W, 2023 | Green & YST, NeurIPS W, 2020

Cosmology

Alternate Statistics for Higher-Order Moments

Introduced scattering transform to enhance quantification of cosmic web, reionization, and parity violation. *Craigie**, Taylor, YST+ 2024 | *Greig**, YST+ 2022 | *Cheng**, YST+ 2020 (Intl. Astrostatistics Assoc. Award)

Black Hole Physics & Lyman-Alpha Forest

Developed unsupervised methods (QFA) to infer quasar continua from the observed quasar spectra *Sun**, YST & Zheng, 2023 | *Sun**, YST & Zheng, ICML W, 2022

Galaxy Evolution

Star Formation, Interstellar Medium & Galactic Outflow

Advanced statistical modeling to probe star formation, ISM dynamics via the elemental signatures in stars. YST & Ji 2024 | Sharda, YST+ 2024 | YST & Weinberg 2022 | Krumholz & YST, 2018

Secular Evolution of Galaxies

Quantified how star migration and molecular cloud interactions contribute to the Milky Way's evolution. *Frankel**, Sanders, YST+, 2020 (Ernst Patzer Prize) | YST & Rix, 2019 | *Frankel**, Rix, YST+, 2018

Stellar Astrophysics

Stellar Binaries, Close & Wide

Developed single-epoch methods for detecting binaries, improving mass calibration and formation studies. Hwang, YST, Cheng & Speagle, 2023 | *Hwang*^{*}, YST, & Zakamska, 2022 | *El-Badry*^{*}, YST+, 2019

Stellar Spectroscopy and Asteroseismology

Developed Transformer-based neural networks to extract detailed stellar properties from spectra. Established neural scaling laws for spectroscopy and time series data, advancing foundational models. *Rozanski**, YST+, 2024 | *Pan**, YST+ 2024 | Zhang, Xiang, YST+ 2024 | Xiang, YST+, 2019 | YST+, 2019

Exoplanet

Planet Engulfment

Showed that > 10% of stars consume planets, suggesting frequent scattering in super-Earth systems. Liu^{*}, YST, Yong^{*}+, Nature (Cover Page), 2024 | Yong^{*}, Liu^{*}, YST+, 2023 Supervised 10 postdocs and 53 students (29 PhDs, 4 Masters, 18 undergraduates, 2 high-schoolers) 28 of these postdocs/students are from the Ohio State University or Australian National University

which has led to 63 refereed publications

Three of which have won key awards, including International Astrostatistics Associate Award Max Planck's Ernst Patzer Prize, and IOP Publishing Top Cited Paper Award

Техтвоок

Essential Data Analysis in Astronomy - 2025 Author: Yuan-Sen Ting A comprehensive textbook exploring essential computational, statistical, and data analysis techniques for daily astronomical research. Covers topics from Bayesian inference and regression to neural networks and MCMC methods, with companion Python tutorials.

TEACHING

2023-present	Lecturer Australian National University – Astronomical Computing (ASTR4004/8004), undergraduate and graduate school level – Statistical Machine Learning (COMP4670/8600), undergraduate and graduate school level
2020-present	Summer School Lecturer / Workshop Lecturer / Guest LecturerAmerican University of Sharjah (2024)Deep Learning and Stellar SpectroscopyIntersect 4th collaborative course (2024)HPC and Data in AstrophysicsWestlake University (2024)Expediting Astronomical Research with LLMs and SBIUniversity of Chicago (2024)Generative Models for AstronomyUniversity of Rwanda (2024)Unsupervised Learning with Neural NetworksUniversiti Malaya (2023)Introduction to Python with Co-Pilot and ChatGPTUniversity of Hawaii (2023)Introduction to Simulation-Based InferencesIAU Symposium 377 (2023)Introduction to Flow-Based Generative ModelingAustralian ANITA (2022)Higher-Order Moment Statistics with Scattering Transform
2023	Online Education Platform ContributorFrogasiaContributed to a series of online astronomy educational materials in Malaysia
2021-23	Academic Council Malaysian Olympiad on Astronomy & Astrophysics Lecturing, setting test questions, and selecting a Malaysian team for the International Olympiad
2017	Community Teaching in MathematicsPrinceton Prison Teaching Initiative (PTI)PTI is a volunteer program teaching accredited college classes to prison inmates in New Jersey
2014	Teaching Assistant in AstrophysicsHarvard University- Stellar Astrophysics, graduate school Level
2010-11	Instructor in Physics and MathematicsNational University of Singapore- Mathematics: 1. Topology 2. Linear Algebra 3. Algebra- Physics: 1. Classical Mechanics 2. Electromagnetism

COMMUNITY ENGAGEMENT

Public engagement and media outreach are integral parts of my academic career. I have given a TEDx talk in my home country of Malaysia, participated in a podcast, and have been writing monthly columns for Malaysia's largest Chinese newspaper since 2020. My experiences growing up in Malaysia have instilled in me a strong belief in the transformative power of education and have driven me to create various educational resources, including two TED educational videos that have collectively amassed approximately four million views worldwide. I have also developed the first interactive kiosk at the Harvard Science Center and designed numerous interactive applets, participated in the Skype a Scientist program during the pandemic and taught in prison. Furthermore, I have contributed to online education by creating a course on edX and editing a 1200-page quantum field theory (QFT) textbook by Sidney Coleman.

Media		
2023	TEDx Talk @ Petaling Street, Kuala Lumpur, Malaysia Seeing Humanity through Dystopian AI	
2020-24	Monthly Columns, Sin Chew Daily, Malaysia. A recent example below2023/08: AI, ChatGPT, and My Mom's Roombatransla	ation
2024	TEDx Podcast 启动一刻, Kuala Lumpur, Malaysia	
2024	Featured Interview regarding the Nature publication, Sin Chew Daily, Malaysia	
2024	Featured Interview on Astrobites	
2023	Featured on ANU's computer science departmental webpage's frontpage	
2023	Featured on ANU's computer science "AI Feature"	
2023	Featured on an NASA Cosmic Origins Program interview	
2023	Featured on UK's Royal Astronomical Society - "The Observatory"	
2022	Featured in the "Search for Life in the Universe," a Malaysian government-funded document	itary
2022	Featured in Australian Gonvernment Global Talent Program as a highlighted recipient	
2020	Featured Interview, National Newspaper, Nanyang Daily, Malaysia transla	ation
2020-22	Featured Interview 1, 2, National Newspaper, Sin Chew Daily, MalaysiatranslaA Galactic Archaeologist who Traces the Long History of Stars1	ıtion
2018	Featured in Institute for Advanced Study Newsletters, Featured Article 1, Featured Article 2	
2013	TED-Ed Video: How to Measure Extreme Distances (viewed 3.4M times)	
2013	TED-Ed Video: How do We Study the Stars?(viewed 0.8M times)	
Interactive Applets		
2014	Lead developer of an EdX course, showcasing interactive applets for teaching astronomy	
2014	Lead developer of the first Harvard scientific interactive kiosk at the Harvard science center	r
Other Writing		
2019	Editor, International Astronomical Union Symposium 377 Proceeding	
2019	Editor, textbook), Quantum Field Theory, Lectures of Sidney Coleman	
2013	Astrobites contributor	
2013	Harvard Science in the News contributor	
2013	Classroom visit, "There's a Scientist in My Classroom!" Program, Cambridge, MA	

PROFESSIONAL LEADERSHIPS AND SERVICES

In addition to my pioneering work in applying machine learning to astronomical research, I have taken on significant leadership roles in advancing spectroscopic surveys. I am actively shaping the future of wide-field surveys using 6.5m-15m telescopes, serving as the Milky Way group co-leader for the MUST survey and previously as the machine learning group leader for the US-led FOBOS survey. Furthermore, I initiated the C3PO spectroscopic program, securing 12 nights on premier telescopes such as Keck, Magellan, and VLT (valued at approximately \$1M USD) to study nearby comoving stars with unprecedented precision. This effort culminated in a Nature publication featured on the cover. I am also honored to serve as the inaugural chairperson of the NASA Cosmic Program Star Interest Group since 2021.

Maintaining strong ties to my Malaysian roots, I am committed to addressing the challenges faced by science in my home country. With only about 30 individuals holding a PhD in astronomy among Malaysia's 30 million inhabitants, I have taken proactive steps to promote astronomy within the nation. In 2023, I led the organization of the first two major astronomy conferences and a summer school in Malaysia. I co-founded the Global Malaysian Astronomer Convention, aimed at showcasing the work of Malaysian astronomers worldwide, engaging aspiring Malaysian students, and influencing national educational policies. Additionally, I spearheaded a successful grant proposal to the International Astronomical Union (IAU), resulting in the first-ever IAU symposium in Malaysia - the first IAU conference in Southeast Asia since 1990. As part of ongoing efforts, I serve as the Malaysian representative to the East Asian Observatory, an initiative to strengthen astronomy in developing Southeast Asian nations. Lastly, in 2023, I co-chaired the Computational Genomics Conference at ANU, facilitating interdisciplinary scientific endeavors at ANU.

Other Involvements:

2024-present	Co-PI	NSF's Future of AI and the Mathematical and Physical Sciences (AI+MPS)
2024-present	Institution Lead	SDSS-V Collaboration Council
2022-present	Co-Chair	IEEE "Deep Vision in Space" Task Force
2021-present	PhD Thesis Committee	Samantha Usman - University of Chicago

2025	Co-Chair	IJCNN 2024 Workshop - Deep Vision in Space @ Rome, Italy
2025	Reviewer	Chilean Agency for Research and Development
2024	Reviewer	Hubble Space Telescope Cycle 32 Bridge
2024-25	Committee	Graduate Student Committee, OSU
2024	Committee	Graduate Student Admission Committee, OSU
2024	PhD Thesis Committee	Wassim Tenachi - Observatoire Astronomique de Strasbourg
2024	Organizing Committee	4th Collab. Graduate Edu HPC and Data in Astro. @ Australia
2024	Reviewer	Austrian Science Fund (FWF) ESPRIT Programme
2024	Co-Chair	IJCNN 2024 Workshop - Deep Vision in Space @ Yokohama, Japan
2024	SOC	Astronomy Big Data Exploration Camp @ Yunnan, China
2024	SOC	Simulation-Based Inference for Galaxy Evolution @ Bristol, UK
2024	SOC	New Comp. Methods in Milky Way Dynamics @ Ringberg, Germany
2024	Reviewer	NASA Future Investigators in Earth, Space Science & Technology
2023-24	Advisory Committee	Machine Learning in Australian Astronomy
2023	Australia Co-I	SpelTel: A 10-12 meter class Spectroscopic Survey Telescope
2023	Colloquium Committee	ANU Research School for Astrophysics and Astronomy
2023	Editor	Computational Astronomy, Intelligent Computing, AAAS
2023	SOC	IEEE WHISPER Multi-Modal Segmentation Contest @ Rome, Italy
2023	SOC Workshop Chair	International Joint Conf. on Neural Networks @ Gold Coast, Australia
2023	SOC	Astronomical Stellar Parameter Measurement @ Yunnan, China
2022	Advisory Committee	ANU Jubilee Fellowship
2022	Book Reviewer	World Scientific
2022	SOC	Machine Learning in Cool Stars @ Toulouse, France
2021-24	Chief Investigator	Australian-Rubin Observatory Agreement
2021	Advisory Committee	CSST, a UV-optical deep imaging satellite
2020-21	Working Group Leader	Earth2.0, a space satellite searching for Earth-analogs
2020	Review Panelist	NASA Astrophysics Data Analysis Program
2020	SOC	Machine Learning and Physics Conference @ Beijing, China
2020	Time Allocation Committee	Japan Subaru Telescope
2019-20	Reviewer	NASA Future Investigators in Earth, Space Science & Technology (x2)
2019	Time Allocation Committee	Gemini Observatory - Canada
2018-19	Time Allocation Committee	United States National Optical Astronomy Observatory
2018	Time Allocation Committee	China Telescope Access Program
2017-18	SOC Chair	The 1 $^{ m st}$ and 2 $^{ m nd}$ Princeton Postdocs Symposium
2013-16	Lead Ambassador	World-Wide Telescope (WWT) Ambassador Program
2012	Instructor	Harvard College Observing Program
2019-2023	PhD Thesis Committee	Tyler Nelson - University of Texas, Austin
2019	Master Thesis Committee	Spencer Bialek - University of Victoria
2017-present	Journal Referee	Nature, Nature Astronomy, ApJ, ApJL, MNRAS, A&A, JCAP,
		ICML, Journal of Geophysical Research,
		Annals of the Institute of Statistical Mathematics, Modern Physics Letter A. The Innovation Universe
		Modern i hysics Letter A, the innovation, Universe

Prof. David Weinberg	Distinguished University Professor
Ohio State University	phone: +1-614-292-2022, email: weinberg.21@osu.edu
Prof. Hans-Walter Rix	Director
Max Planck Institute for Astronomy	phone: +49-6221-528-210, email: rix@mpia.de
Dr. John Mulchaey	President
Carnegie Institution for Science	phone: +1-626-304-0257, email: mulchaey@carnegiescience.edu
Prof. Brice Ménard	Professor
Johns Hopkins University	phone: +1-410-516-5743, email: menard@jhu.edu
Prof. Charlie Conroy	Professor
Harvard University	phone: +1-617-495-7005, email: cconroy@cfa.harvard.edu
Prof. Doug Finkbeiner	Professor
Harvard University	phone: +1-617-384-8393, email: dfinkbeiner@cfa.harvard.edu

Complete List of Supervisions

I have acted as the main supervisor ("primary") or as one of the two key supervisors ("secondary") for my students. This list includes only those students with whom I interact on a weekly basis throughout my supervision period. - 'Term" denotes short-term projects, lasting from six months to a year.

- 'Thesis" indicates multi-year projects.

- 'HD" represents an Honours thesis awarded with high distinction, first-class honors or both.

Postdocs / Research Associates

2025-present	Milan Pesta	OSU (Astrophysics)	primary supervisor	
2022-present	Erwin Chen	OSU (Astrophysics)	primary supervisor	2 papers
2023-present	Tomasz Różański	ANU (Astrophysics)	primary supervisor	2 papers
2023-present	Jiadong Li	Max Planck	primary supervisor	1 paper
2023-24	Bradley Greig	ANU (Astrophysics)	primary supervisor	5 papers
2022-24	Jie Yu	ANU (Computer Science)	primary supervisor	3 papers
2020-24	loana Ciucă	ANU Jubilee + Astro3D Fellow	primary supervisor	4 papers
2020-23	David Yong	ANU (Astro) \rightarrow Government	primary supervisor	1 paper
2023-24	Qinghui Sun	Tsinghua University	secondary supervisor	1 paper
2021-24	Fan Liu	Swinburne University	secondary supervisor	1 paper

PhD Students

2024-present	Dylan Leung	OSU (Physics)	primary supervisor (term)	
2024-present	James McNeil	ANU (Computer Science)	primary supervisor (thesis)	
2024-present	Yuwei Yang	ANU (Computer Science)	primary supervisor (thesis)	1 paper
2023-present	Yanjun Sheng	ANU (Astrophysics)	primary supervisor (thesis)	1 paper
2022-present	Zechang Sun	Tsinghua University	primary supervisor (thesis)	4 papers
2023-24	Maja Jablonska	ANU (Astrophysics)	secondary supervisor (thesis)	
2022-23	Zefeng Li	ANU ightarrow Durham University	secondary supervisor (thesis)	1 paper
2017-19	Jane Lin	$ANU \to industry$	secondary supervisor (thesis)	2 papers
2024	Milan Pesta	Charles University	primary supervisor (term)	
2023-24	Junhui Liu	Xiamen University	primary supervisor (term)	1 paper
2023-24	Rui Pan	Hong Kong UST	secondary supervisor (term)	2 papers
2022-25	Matt Craigie	U. Queensland \rightarrow JPL/NASA Fellow	primary supervisor (thesis)	1 paper
2022-23	Jiaxuan Li	Princeton University	primary supervisor (term)	
2022-23	Xiaosheng Zhao	Tsinghua $ ightarrow$ J. Hopkins	primary supervisor (term)	1 paper
2022-23	Tomasz Różański	Wroclaw University \rightarrow ANU	primary supervisor (term)	1 paper
2021-22	Sunny Tang	$UIUC o Finance, JP \ Morgan$	primary supervisor (term)	1 paper
2021-22	Danny H. Darrington	$Liverpool\ LJMU \to CCA\ Fellow$	primary supervisor (term)	
2020-21	Hsiang-Chih Hwang	J. Hopkins \rightarrow IAS \rightarrow Renaissance	primary supervisor (term)	3 papers
2020-21	Tyler Nelson	UT Austin $ ightarrow$ U. Southern Maine	primary supervisor (term)	1 paper
2020-21	Sankalp Gilda	U. Florida $ ightarrow$ industry	secondary supervisor (term)	1 paper
2019-21	Madeline Lucey	$UT\:Austin\toUPenn/NSF\:Fellow$	primary supervisor (term)	2 papers
2019-21	Rohan Naidu	Harvard o MIT Pappalardo/Hubble	secondary supervisor (term)	1 paper
2019-20	Sihao Cheng	J. Hopkins \rightarrow IAS-Perimeter Fellow	secondary supervisor (thesis)	1 paper
2018-20	Nathan Sandford	UC Berkeley \rightarrow U. of Toronto	secondary supervisor (term)	2 papers
2018-20	Lachlan Lancaster	$Princeton \to Simons \ Junior \ Fellow$	secondary supervisor (term)	1 paper
2017-20	Neige Frankel	$Max\ Planck \to UToronto\ Fellow$	secondary supervisor (thesis)	3 papers
2017	Kareem El-Badry	$Berkeley \to Harvard \to Caltech$	secondary supervisor (term)	2 papers
2016-21	Harshil Kamdar	$Harvard \to industry$	secondary supervisor (thesis)	3 papers
2016-19	Mikhail Kovalev	$Max\ Planck \to Yunnan\ postdoc$	secondary supervisor (thesis)	1 paper

Master Students

2025-prsent	Yuting Shen	Georgia Tech (MSc, CS)	primary supervisor (term)	
2023	Josh Nguyen	ANU (MSc, CS) $ ightarrow$ UPenn PhD	primary supervisor (term)	1 paper
2022-23	Yanjun Sheng	ANU (MSc, Astro) $ ightarrow$ ANU PhD	primary supervisor (thesis)	1 paper
2022-23	Rachel Lim	$Cambridge \rightarrow \textit{Finance, Deloitte}$	primary supervisor (term)	

Undergraduates

2022-23	Ziqi Yuan	ANU (Honours, Astrophysics, PhB)	primary supervisor (thesis)	HD
2022-25	Bhavesh Sharma	ANU (Honours, CS)	primary supervisor (thesis)	HD, 1 paper
2023	Anthony Siharath	ANU (Honours, CS)	secondary supervisor (thesis)	HD
2022	Shu Zou	ANU (Honours, CS) \rightarrow ANU PhD	primary supervisor (thesis)	HD
2022	Bowen Tang	ANU (Honours, CS) \rightarrow ANU PhD	primary supervisor (thesis)	HD
2021-23	Zeefan Khan	ANU (Honours, Engineering)	primary supervisor (thesis)	
2023-24	Charles O'Neill	ANU (CS, PhB) \rightarrow Oxford PhD	secondary supervisor (term)	
2022	Bede Denham	ANU (Engineering)	secondary supervisor (term)	
2021-22	Anne Xie	ANU (Astrophysics, PhB)	primary supervisor (term)	
2021-22	Ashley Tan	ANU (Astrophysics)	primary supervisor (term)	
2021-22	Yangda Bei	ANU (CS, PhB)	primary supervisor (term)	
2020-21	Yukang Liu	ANU (CS) \rightarrow Simon Fraser PhD	primary supervisor (term)	
2021-24	Jiashu Pan	Nanjing $ ightarrow$ Westlake PhD	primary supervisor (thesis)	3 papers
2021-22	Zechang Sun	Tsinghua o Tsinghua PhD	primary supervisor (thesis)	1 paper
2021-22	Yong-Sheng Yap	National Tsinghua $ ightarrow$ Cambridge PhD	primary supervisor (term)	
2020-21	Vedant Chandra	Johns Hopkins $ ightarrow$ Harvard PhD	primary supervisor (term)	
2019-20	Teaghan O'Briain	$Victoria \rightarrow UVictoria\ PhD$	secondary supervisor (thesis)	2 papers
2018	Erwin Chen	$Wisconsin \to USydney \ PhD \to ANU$	primary supervisor (term)	

High School Students

2024-present	Dun Li Chan	High School	primary supervisor (term)
2019	Jupiter Ding	$High\;school\toPrinceton\;UG$	primary supervisor (term)

Conference Presentations

Invited Talk, "AI-Empowered Astronomy for Open Science," remote event	April 2025		
Invited Talk, "Data Science and Astronomy," Tokyo, Japan	Oct 2024		
Invited Talk, "A Mini-Workshop on the Bulge in Tokyo", Tokyo, Japan	Oct 2024		
Contributed Talk, "Lyman Alpha Forest Workshop.", Columbus, United States	Sep 2024		
Invited Talk, "Hey GPT! Can You Help Me Understand the Universe?," remote event	Sep 2024		
Contributed Talk, "1st Science Understanding through Data Sci. Conf.", Pasadena, United States	Aug 2024		
Invited Talk, "David Weinberg's 60th Birthday Conference," Salt Lake City, United States	July 2024		
Invited Talk, "International Conference on Machine Learning for Astrophysics," Catania, Italy			
Plenary Talk, "National Computational Infrastructure Intersect Showcase 2024," remote event			
Invited Talk, "#1 Hangzhou Micro-Workshop on The Frontiers of Astrophysics," remote event	June 2024		
Plenary Talk, "AstroAl Workshop," Cambridge, USA	June 2024		
Contributed Talk, "Globular Clusters and Their Tidal Tails," Toronto, Canada	May 2024		
Invited Talk, "2024 STATSTRO Workshop," remote event	May 2024		
Invited Talk, "High Table on Space, Bruce Hall, Australian National University," Canberra, Australia	April 2024		
Invited Talk, "The Future of Discovery in the Age of Human-Al Collaboration," Ann Arbor, USA	March 2024		

Departmental Colloquia & Seminars

Invited talks are in **boldface**, departmental colloquia are marked with **.

Stanford University, Palo Alto, United States	April 2025
Stanford University, KIPAC, Palo Alto, United States	April 2025
University of Chicago, Chicago, United States	April 2025
ESO AI Forum Seminar Series, remote event	April 2025
NSF-Simons AI Institute for Cosmic Origins (CosmicAI)**, Austin, United States	April 2025
The University of Texas at Austin**, Austin, United States	April 2025
Boston University**, Boston, United States	Feb 2025
University of Pittsburgh**, Pittsburgh, United States	Dec 2024
Massachusetts Institute of Technology (IAIFI)**, Cambridge, United States	Nov 2024
National Astronomical Observatory of Japan, Tokyo, Japan	Oct 2024
Al for Quantum Field Theory Seminar Series, remote event	Oct 2024
KEK, Tsukuba, Japan	Oct 2024
National Astronomical Observatory of Japan, Tokyo, Japan	Oct 2024
The Astroinformatics & Astrostatistics Commission of the IAU, remote event	Aug 2024
Shanghai Observatory, Shanghai, China	July 2024
Shanghai Jiaotong University, Shanghai, China	July 2024
Shanghai Normal University, Shanghai, China	July 2024
Jet Propulsion Laboratory, Pasadena, United States	June 2024
Harvard University, Cambridge, United States	June 2024
City University of Hong Kong**, Hong Kong, China	May 2024
The Chinese University of Hong Kong**, Hong Kong, China	May 2024
University of Tennessee, Knoxville, Knoxville, United States	March 2024
Oak Ridge National Laboratory, Knoxville, United States	March 2024
UC Davis**, Davis, United States	March 2024
Georgia Institute of Technology**, Atlanta, United States	March 2024
Trillion Parameter Consortium Seminar Series, remote event	March 2024
Westlake University, Hangzhou, China	March 2024
Universiti Malaya **, Kuala Lumpur, Malaysia	Feb 2024
National University of Singapore**, Singapore, Singapore	Feb 2024
National University of Singapore (Institute of Data Science), Singapore, Singapore	Feb 2024
National Astronomical Research Institute of Thailand, Chiang Mai, Thailand	Jan 2024
University of Liverpool, remote event	Jan 2024

*: publications from students or postdocs whom I supervised. **: equal contribution / joint first-authored

- Refereed Publications - As 1st-3rd or Supervising Author-

-2025 -

- 211. **T. Rozanski & Y.-S. Ting**, *The Open Journal of Astrophysics*, submitted *Scaling Laws for Emulation of Stellar Spectra*
- 210. Y.-S. Ting, The Open Journal of Astrophysics, submitted Why Machine Learning Models Systematically Underestimate Extreme Values
- 209. Y. Yang, ..., Y.-S. Ting, L. Zheng. International Conference on Computer Vision, submitted Effective Training Data Synthesis for Improving MLLM Chart Understanding
- 208. **B. Chen**^{*}, M. Orkney, **Y.-S. Ting**, & M. Hayden, *The Open Journal of Astrophysics*, submitted *Discovery of A Starburst in the Early Milky Way at [Fe/H] < -2*
- 207. J. Li^{*}, Y.-S. Ting, et al., *The Astrophysical Journal*, submitted Identification of 30,000 White Dwarf-Main Sequence Binaries Candidates from Gaia DR3 BP/RP(XP) Low-Resolution Spectra
- 206. **M. Craigie**^{*} P. Taylor, **Y.-S. Ting**, et al., *Physical Review D*, submitted Unsupervised Searches for Cosmological Parity Violation: Improving Detection Power with the Neural Field Scattering Transform
- 205. M. Zhang, M. Xiang, Y.-S. Ting, et al., *The Astrophysical Journal*, in-press. Homogeneous Stellar Atmospheric Parameters and 22 Elemental Abundances for Six Million FGK Stars Derived From LAMOST Low-resolution Spectra with DD-PAYNE
- 204. J. Yu*, [+14 coauthors including Y.-S. Ting], Nature Astronomy, in-press. Enhanced Magnetic Activity in Rapidly Rotating Binary Stars
- 203. J. Yu*, Y.-S. Ting, et al., Monthly Notices Royal Astronomical Society, 538, 2408
 C3PO IV: Co-natal Stars Depleted in Refractories are Magnetically More Active
 Possible Imprints of Planets
- 202. S. Zhang, H. Zhang, Y.-S. Ting, et al., The Astrophysical Journal Supplement Series, 277, 47 Half a Million M Dwarf Stars Characterized Using Domain-Adapted Spectral Analysis
- 201. T. de Haan, Y.-S. Ting, & Team AstroMLab, Nature's Scientific Reports, 15, 13751 AstroMLab 3: Achieving GPT-40 Level Performance in Astronomy with a Specialized 8B-Parameters Large Language Model
- 200. Y.-S. Ting, Nature Astronomy, 9, 317 Artificial Intelligence Compels the Astronomy Community to Rethink Research Identity and Redefine Excellence Read the article here
- 199. **Y.-S. Ting** & A. Ji, *The Open Journal of Astrophysics*, 8 Quantifying Bursty Star Formation in Dwarf Galaxies
- 198. T. Rozanski*, Y.-S. Ting, & M. Jablonska*, The Astrophysical Journal, 980, 66 TransformerPayne: Enhancing Spectral Emulation Accuracy and Data Efficiency by Capturing Long-Range Correlations
- 197. Y.-S. Ting & Team AstroMLab, Astronomy & Computing, 51, 100893 AstroMLab 1: Who Wins Astronomy Jeopardy!? Notable media mention: Nature Astronomy

196. Q. Sun^{*}, Y.-S. Ting, et al., *The Astrophysical Journal Letter*, 978, 107 C3PO III: Lithium Signatures Following Planet Engulfment by Stars

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195. F. Liu*, Y.-S. Ting, D. Yong*, et al., Nature, 627, 501

At Least One in a Dozen Stars Shows Evidence of Planetary Ingestion Read the article here, ranked top 25 of > 1000 papers published in Nature based on online attention. Notable media mention: BBC, Reuter, The Conversation, ANU Reporter, Physics World, SBS, Scientific American, Newscientist, Physics.org, Channel News Asia Cosmos, USA Today, The Guardian, 科普中国

- 194. J. Liu^{*}, B. Zhang, J. Wu, & Y.-S. Ting, The Astrophysical Journal Supplementary Series, 275, 40 Double-lined Spectroscopic Binaries from the LAMOST Low-Resolution Survey
- 193. **Y. Sheng**^{*}, **Y.-S. Ting**, X. Xue, J. Chang, Monthly Notices Royal Astronomical Society, 534, 2694 Uncovering the First-Infall History of the LMC Through Its Dynamical Impact in the Milky Way Halo
- 192. Z. Sun*, Y.-S. Ting, et al., Neural Information Processing Systems (NeurIPS) Workshop 2024 Interpreting Multi-band Galaxy Observations with Large Language Model-Based Agents Notable media mention: Microsoft, Microsoft Asia
- 191. **R. Pan**^{*}, Team AstroMLab, & **Y.-S. Ting**, SuperComputing (SC24) Al4S Workshop 2024 AstroMLab 2: AstroLLaMA-2-70B Model and Benchmarking Specialised LLMs
- 190. B. Chen*, Y.-S. Ting, & M. Hayden, Publications of the Astronomical Society of Australia, 41, e063 The Dawn is Quiet Here: Rise in [α/Fe] is a Signature of Massive Gas Accretion that Fueled Proto-Milky Way
- 189. B. Greig*, [+10 coauthors including Y.-S. Ting], Monthly Notices Royal Astronomical Society, 533, 3312 Blind QSO Reconstruction Challenge: Exploring Methods to Reconstruct the Lyα Emission Line of QSOs
- 188. **B. Greig***, D. Prelogovi, Y. Qin, **Y.-S. Ting** & A. Mesinger, *Mon. Not. Royal Astron. Soc.*, 533, 2530 Inferring Astrophysical Parameters using the 2D Cylindrical Power Spectrum from Reionisation
- 187. **B. Greig**^{*}, D. Prelogovi, J. Mirocha, Y. Qin, **Y.-S. Ting** & A. Mesinger, *Mon. Not. Royal Astron. Soc.*, 533, 2502 Exploring the Role of the Halo Mass Function for Inferring Astrophysical Parameters During Reionisation
- 186. J. Pan*, Y.-S. Ting, et al., International Conference ML (ICML) Workshop The Scaling Law in Stellar Light Curves
- 185. Z. Sun*, Y.-S. Ting, et al., International Joint Conference on Artificial Intelligence (IJCAI) Al4Research Workshop Knowledge Graph in Astronomical Research with Large Language Models: Quantifying Driving Forces in Interdisciplinary Scientific Discovery
- 184. P. Sharda, Y.-S. Ting & N. Frankel, Monthly Notices Royal Astronomical Society, 532, 1 A Path Towards Constraining the Evolution of the Intersellar Medium and Outflows in the Milky Way using APOGEE
- 183. M. Zhang, M. Xiang, Y.-S. Ting, et al., *The Astrophysical Journal Supplementary Series*, 273, 19 Determining Stellar Elemental Abundances from DESI Spectra with Data-Driven Payne
- 182. J. Yu*, L. Casagrande, I. Ciucă, Y.-S. Ting, et al., Monthly Notices Royal Astronomical Society, 530, 2953 New Evidence of Binarity in Young α-rich Turn-Off and Subgiant Stars: Fast Rotation and Strong Magnetic Activity
- 181. P. Taylor, M. Craigie^{*} & Y.-S. Ting, Physical Review D, 109, 083518 Unsupervised Searches for Cosmological Parity-Violation I: A Investigation with Convolution Neural Networks
- 180. Z. Li^{*}, Grand, Wisnioski, Mendel, Krumholz, Ting+, Monthly Notices Royal Astronomical Society, 528, 7103 Cosmological Evolution of Metallicity Correlation Functions from the Auriga Simulations
- 179. J. Pan^{*,**}, Y.-S. Ting^{**} & J. Yu^{*}, Monthly Notices Royal Astronomical Society, 528, 5890 Astroconformer: The Prospects of Analysing Stellar Light Curves with Transformer-Based Deep Learning Models

- 178. H. Hwang, Y.-S. Ting, S. Cheng, J. Speagle, Monthly Notices Royal Astronomical Society, 528, 4272 Dynamical Masses across the Hertzsprung-Russell Diagram Notable mention: AstroPlot of the Week, Gaia Image of the Week
- 177. E. Perkowski^{**}, **R. Pan**^{*,**}, **T. Nguyen**^{*}, **Y.-S. Ting**⁺, *Research Notes of the AAS*, 8, 7 *AstroLLaMA-Chat: Scaling AstroLLaMA with Conversational and Diverse Datasets* Notable media mention: Machine Learning Street Talk

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- 176. D. Nguyen, **Y.-S. Ting**, T. Thompson, L. Lopez & S. Lopez, *Neural Information Processing Systems Workshop 2023* Neural ODEs as a Discovery Tool to Characterize the Structure of the Hot Galactic Wind of M82
- 175. Z. Sun^{*}, S. Huang, J. Speagle, Y.-S. Ting & Z. Cai, Neural Information Processing Systems Workshop 2023 Zephyr : Stitching Heterogeneous Training Data with Normalizing Flow for Photometric Redshift Inference
- 174. D. Yong*, F. Liu*, Y.-S. Ting, et al., Monthly Notices Royal Astronomical Society, 526, 2181
 C3PO: Towards a Complete Census of Co-moving Pairs of Stars.
 I. High precision stellar parameters for 250 stars
- 173. I. Ciucă*, D. Kawata, Y.-S. Ting, et al., Monthly Notices of the Royal Astronomical Society Letters, 528, L122 Chasing the Impact of the Gaia-Sausage-Enceladus Merger of the Milky Way Thick Disc Notable mention: American Physics Society
- 172. Z. Sun*, Y.-S. Ting & Z. Cai, The Astrophysical Journal, 269, 4 Quasar Factor Analysis – An Unsupervised and Probabilistic Quasar Continuum Prediction Algorithm with Latent Factor Analysis
- 171. **T. Nguyen***, **Y.-S. Ting**, et al., International Joint Conference on Natural Language Processing *AstroLLaMA: Towards Specialized Foundation Models in Astronomy* Notable mention: Hugging Face Daily
- 170. X. Zhao^{*,**}, Y.-S. Ting^{**}, K. Diao & Y. Mao, The Astrophysical Journal, 526, 1699 Can Diffusion Model Conditionally Generate Astrophysical Images?
- 169. **Y.-S. Ting****, & **B. Sharma***,**, International Conference ML (ICML) Workshop Weisfeiler-Lehman Graph Kernel Method: A New Approach to Weak Chemical Tagging
- 168. T. Rozanski*,**, Y.-S. Ting**, & M. Jablonska, International Conference ML (ICML) Workshop Toward a Spectral Foundation Model: An Attention-Based Approach with Domain-Inspired Fine-Tuning and Wavelength Parameterization
- 167. I. Ciucă*,**, Y.-S. Ting**, S. Kruk & K. Iyer, International Conference ML (ICML) Workshop Harnessing the Power of Adversarial Prompting and Large Language Models for Robust Hypothesis Generation in Astronomy
- 166. I. Ciucă* & Y.-S. Ting, Research Notes of the American Astronomical Society, 7, 9 Galactic ChitChat: Using Large Language Models to Converse with Galactic Archaeology Literature
- 165. **M. Lucey***, N. Al Kharusi, K. Hawkins, **Y.-S. Ting**, et al., *Monthly Notices Royal Astronomical Society*, 523, 4049 *Carbon-Enhanced Metal-Poor Star Candidates from BP/RP Spectra in Gaia DR3*
- 164. **N. Sandford***, D. Weisz & **Y.-S. Ting**, *The Astrophysical Journal Supplementary Series*, 267, 18 Validating Stellar Abundance Measurements from Multiresolution Spectroscopy
- 163. **B. Greig**^{*}, **Y.-S. Ting**, & A. Kaurov, Monthly Notices of the Royal Astronomical Society, 519, 5288 Detecting the Non-Gaussianity of the 21-cm Signal during Reionisation with the Wavelet Scattering Transform
- 162. G. Green, Y.-S. Ting & H. Kamdar^{*}, The Astrophysical Journal, 942, 26 Deep Potential: Recovering the Gravitational Potential from a Snapshot of Phase Space

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161. J. Leja, J. Speagle, Y.-S. Ting, et al., *The Astrophysical Journal*, 936, 165 A New Census of the 0.2 < z < 3.0 Universe, Part II: The Star-Forming Sequence

- 160. I. Ciucă^{*},^{**} & Y.-S. Ting^{**}, International Conference ML (ICML) Workshop, spotlight presentation Unsupervised Learning for Stellar Spectra with Deep Normalizing Flows
- 159. **K. Tang**^{*,**} & **Y.-S. Ting**^{**}, International Conference ML (ICML) Workshop, spotlight presentation Galaxy Merger Reconstruction with Equivariant Graph Normalizing Flows
- 158. **Z. Sun**^{*}, **Y.-S. Ting** & Z. Cai, International Conference ML (ICML) Workshop An Unsupervised Learning Approach for Quasar Continuum Prediction
- 157. J. Pan^{*,**}, Y.-S. Ting^{**} & J. Yu^{*}, International Conference ML (ICML) Workshop Astroconformer: Inferring Surface Gravity of Stars from Stellar Light Curves with Transformer
- 156. M. Xiang, H.-W. Rix, Y.-S. Ting, et al., Astronomy & Astrophysics, 662, 66 Stellar Labels for Hot Stars from Low-Resolution Spectra - I. the HotPayne Method and Results for 330,000 Stars from LAMOST DR6
- 155. **B. Greig***, **Y.-S. Ting**, & A. Kaurov, Monthly Notices of the Royal Astronomical Society, 513, 1719 Exploring the Cosmic 21-cm Signal from the Epoch of Reionisation Using the Wavelet Scattering Transform
- 154. H. Hwang^{*}, Y.-S. Ting, at al., Monthly Notices of the Royal Astronomical Society, 513, 754 Wide Binaries from the H3 Survey: The Thick Disk and Halo have Similar Wide Binary Fractions
- 153. H. Hwang^{*}, Y.-S. Ting, & N. Zakamska, Monthly Notices of the Royal Astronomical Society, 512, 3383 The Eccentricity Distribution of Wide Binaries and Their Individual Measurements
- 152. **Y.-S. Ting** & D. Weinberg, *The Astrophysical Journal*, 927, 209 *How Many Elements Matter?*

- 2021 -

- 151. **H. Kamdar**^{*}, C. Conroy, **Y.-S. Ting**, K. El-Badry, *The Astrophysical Journal*, 922, 49 Spatial and Kinematic Clustering of Stars in the Galactic Disk
- 150. T. Nelson^{*}, Y.-S. Ting, K. Hawkins, A. Ji, H. Kamdar, K. El-Badry, *The Astrophysical Journal*, 921, 118 Distant Relatives: The Chemical Homogeneity of Comoving Pairs Identified in Gaia
- 149. Greene, Lancaster, **Ting**, Koposov, Danieli, Huang, Jiang, Greco, Strader, *The Astrophysical Journal*, 917, 17 A Search for Wandering Black Holes in the Milky Way with Gaia and DECaLS
- 148. L. Spina, Y.-S. Ting, N. Frankel, et al., Monthly Notices of the Royal Astronomical Society, 503, 3279 The GALAH Survey: Tracing the Galactic Disc with Open Clusters
- 147. M. Xiang, H.-W. Rix, **Y.-S. Ting**, et al., *The Astrophysical Journal Supplement Series*, 253, 22 Data-Driven Spectroscopic Estimates of Absolute Magnitude, Distance, and Binarity Method and Catalog of 16,002 O- and B-type Stars from LAMOST
- 146. **H. Hwang**^{*}, **Y.-S. Ting**, K. Schlaufman, N. Zakamska, *The Astrophysical Journal*, 501, 4329 The Non-Monotonic, Strong Metallicity Dependence of the Wide-Binary Fraction
- 145. **T. O'Briain^{*}**, **Y.-S. Ting**, S. Fabbro, K. Yi, K. Venn, S. Bialek, *The Astrophysical Journal*, 906, 130 *Cycle-StarNet: Bridging the Gap between Theory and Data by Leveraging Large Data Sets*

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- 144. S. Cheng*, Y.-S. Ting, B. Menard, J. Bruna, Monthly Notices of the Royal Astronomical Society, 499, 5902 A New Approach to Observational Cosmology using the Scattering Transform awarded the International Astrostatistics Association Award - for an outstanding publication
- 143. G. Green & **Y.-S. Ting**, Neural Information Processing Systems (NeurIPS) Workshop 2020 Deep Potential: Recovering the Gravitational Potential from a Snapshot of Phase Space
- 142. S. Gilda^{*}, Y.-S. Ting, et al., Neural Information Processing Systems (NeurIPS) Workshop 2020 Astronomical Image Quality Prediction based on Environmental and Telescope Operating Conditions

- 141. Naidu*, Conroy, Bonaca, Johnson, Y.-S. Ting, Caldwell, Zaritsky, Cargile, *The Astrophysical Journal*, 901, 48 Evidence from the H3 Survey that the Stellar Halo is entirely Comprised of Substructure IOP Publishing Top Cited Paper Award - one of the most cited papers from North America (2020-22)
- 140. L. Lancaster*, J. Greene, Y.-S. Ting, S. Koposov, B. Pope, R. Beaton, *The Astronomical Journal*, 160, 125 A Mystery in Chamaeleon: Serendipitous Discovery of a Galactic Symbiotic Nova Notable media mention: AAS Nova
- 139. M. Xiang, H.-W. Rix, Y.-S. Ting, et al., The Astrophysical Journal, 898, 28 Chemically Peculiar A and F Stars with Enhanced s-Process and Iron-Peak Elements: Stellar Radiative Acceleration at Work
- 138. **N. Sandford***, D. Weisz & **Y.-S. Ting**, *The Astrophysical Journal Supplement Series*, 249, 24 Forecasting Chemical Abundance Precision for Extragalactic Stellar Archaeology
- 137. T. O'Briain*, Y.-S. Ting, S. Fabbro, K. Yi, K. Venn, S. Bialek, International Conference ML (ICML) Workshop Interpreting Stellar Spectra with Unsupervised Domain Adaptation
- 136. N. Frankel*, J. Sanders, Y.-S. Ting, H.-W. Rix, The Astrophysical Journal, 896, 15 Keeping it Cool: Much Orbit Migration, yet Little Heating, in the Galactic Disk the Ernst Patzer Prize - the best publication by a young Max Planck Institute for Astronomy scientist
- 135. **M. Lucey**^{*}, **Y.-S. Ting**, N. Ramachandra, K. Hawkins, *Monthly Notices Royal Astronomical Society*, 495, 3087 From the Inner to Outer Milky Way: a Photometric Sample of 2.6 Million Red Clump Stars
- 134. K. Hawkins, M. Lucey, **Y.-S. Ting**, et al., *Monthly Notices of the Royal Astronomical Society*, 492, 1164 Identical or Fraternal Twins? The Chemical Homogeneity of Wide Binaries from Gaia DR2
- 133. J. Lin*, M. Asplund, Y.-S. Ting, et al. Monthly Notices of the Royal Astronomical Society, 491, 2043 The GALAH Survey: Temporal Chemical Enrichment of the Galactic Disc

- 2019 -

- 132. M. Xiang, **Y.-S. Ting**, H.-W. Rix, et al., *The Astrophysical Journal*, 245, 34 Abundance Estimates for 16 Elements in 6 Million Stars from LAMOST DR5 Low-Resolution Spectra
- 131. **H. Kamdar**^{*}, C. Conroy, **Y.-S. Ting**, A. Bonaca, M. Smith, A. Brown, *The Astrophysical Journal Letters*, 884, L42 Stars that Move Together Were Born Together
- 130. **H. Kamdar**^{*}, C. Conroy, **Y.-S. Ting**, A. Bonaca, B. Johnson, P. Cargile, *The Astrophysical Journal*, 884, 173 A Dynamical Model for Clustered Star Formation in the Galactic Disk
- 129. **N. Frankel***, J. Sanders, H.-W. Rix, **Y.-S. Ting**, M. Ness, *The Astrophysical Journal*, 884, 99 *The Inside-Out Growth of the Galactic Disk*
- 128. **M. Kovalev**^{*}, M. Bergemann, **Y.-S. Ting**, H.-W. Rix, *Astronomy & Astrophysics*, 728, 54 Non-LTE Chemical Abundances in Galactic Open and Globular Clusters
- 127. **Y.-S. Ting**, C. Conroy, H.-W. Rix, P. Cargile, *The Astrophysical Journal*, 879, 69 *The Payne: Self-Consistent Ab Initio Fitting of Stellar Spectra*
- 126. **Y.-S. Ting** & H.-W. Rix, *The Astrophysical Journal*, 878, 21 *The Vertical Motion History of Disk Stars throughout the Galaxy*

-2018 -

- 125. **N. Frankel**^{*}, H.-W. Rix, **Y.-S. Ting**, M. Ness, D. Hogg, *The Astrophysical Journal*, 865, 96 Measuring Radial Orbit Migration in the Galactic Disk
- 124. J. Choi, C. Conroy, **Y.-S. Ting**, A. Dotter, *The Astrophysical Journal*, 863, 65 Star Cluster Ages in the Gaia Era
- 123. **Y.-S. Ting**, C. Conroy, H.-W. Rix, M. Asplund, *The Astrophysical Journal*, 860, 159 Measuring Oxygen Abundances from Stellar Spectra without Oxygen Lines

- 122. Y.-S. Ting, K. Hawkins & H.-W. Rix, The Astrophysical Journal Letters, 858, L7 A Large and Pristine Sample of Standard Candles across the Milky Way:
 ~ 100 000 Red Clump Stars with 3% Contamination
- 121. J. Lin*, A. Dotter, Y.-S. Ting, M. Asplund, Monthly Notices of the Royal Astronomical Society, 477, 2606 Stellar Ages and Masses in the Solar Neighbourhood: Bayesian Analysis using Spectroscopy & Gaia DR1 Parallaxes
- 120. K. El-Badry^{*}, Y.-S. Ting, H.-W. Rix, et al., Monthly Notices of the Royal Astronomical Society, 476, 528 Discovery and Characterization of 3000+ Main-Sequence Binaries from APOGEE Spectra
- 119. K. Hawkins, **Y.-S. Ting** & H.-W. Rix, *The Astrophysical Journal*, 853, 20 Photospheric Diagnostics of Core Helium Burning in Giant Stars
- 118. M. Krumholz & **Y.-S. Ting**, Monthly Notices of the Royal Astronomical Society, 475, 2236 Metallicity Fluctuation Statistics in the Interstellar Medium and Young Stars - I. Variance and Correlation
- 117. K. El-Badry^{*}, H.-W. Rix, Y.-S. Ting, et al., Monthly Notices of the Royal Astronomical Society, 473, 5043 Signatures of Unresolved Binaries in Stellar Spectra: Implications for Spectral Fitting

— 2017 —

- 116. **Y.-S. Ting**, H.-W. Rix, C. Conroy, A. Ho, J. Lin, *The Astrophysical Journal Letters*, 849, L9 Measuring 14 Elemental Abundances with R = 1800 LAMOST Spectra
- 115. **Y.-S. Ting**, C. Conroy, H.-W. Rix, P. Cargile, *The Astrophysical Journal*, 843, 32 Prospects for Measuring Abundances of >20 Elements with Low-resolution Stellar Spectra

-2016 -

- 114. H.-W. Rix, **Y.-S. Ting**, C. Conroy, D. Hogg, *The Astrophysical Journal Letters*, 826, L25 *Constructing Polynomial Spectral Models for Stars*
- 113. **Y.-S. Ting**, C. Conroy & H.-W. Rix, *The Astrophysical Journal*, 826, 83 Accelerated Fitting of Stellar Spectra
- 112. **Y.-S. Ting**, C. Conroy & H.-W. Rix, *The Astrophysical Journal*, 816, 10 APOGEE Chemical Tagging Constraint on the Maximum Star Cluster Mass in the α -Enhanced Galactic Disk

- 2015 and earlier -

- 111. **Y.-S. Ting**, C. Conroy & A. Goodman, *The Astrophysical Journal*, 807, 104 (2015) Prospects for Chemically Tagging Stars in the Galaxy
- 110. Y.-S. Ting, H.-W. Rix, J. Bovy, G. van de Ven, Monthly Notices of the Royal Astronomical Society, 434, 652 (2013) Constraining the Galactic Potential via Action-Based Distribution Functions for Mono-Abundance Stellar Populations
- 109. Y.-S. Ting, G. De Silva, K. Freeman, S. Parker, Monthly Notices of the Royal Astronomical Society, 427, 882 (2012) High-Resolution Elemental Abundance Analysis of the Open Cluster IC 4756
- 108. S. Shabala, **Y.-S. Ting**, S. Kaviraj, et al., *Monthly Notices of the Royal Astronomical Society*, 423, 59 (2012) Galaxy Zoo: Dust Lane Early-Type Galaxies are Tracers of Recent, Gas-Rich Minor Mergers
- 107. S. Kaviraj, Y.-S. Ting, M. Bureau, et al., Monthly Notices of the Royal Astronomical Society, 423, 49 (2012) Galaxy Zoo: Dust and Molecular Gas in Early-Type Galaxies with Prominent Dust Lanes
- 106. Y.-S. Ting, K. Freeman, C. Kobayashi, et al., Monthly Notices of the Royal Astronomical Society, 421, 1231 (2012) Principal Component Analysis on Chemical Abundances Spaces

- Refereed Publications - Other Contributions -

-2025 -

- 105. X. Zuo, [+16 coauthors including **Y.-S. Ting**], *The Astrophysical Journal*, submitted *FALCO: a Foundation model of Astronomical Light Curves for time dOmain astronomy*
- 104. J. Kollmeier, [+215 coauthors including **Y.-S. Ting**], *The Astronomical Journal*, submitted *Sloan Digital Sky Survey-V: Pioneering Panoptic Spectroscopy*
- 103. F. Cappello, [+24 coauthors including **Y.-S. Ting**], *International Journal of HPC Applications*, submitted *Establishing a Methodology to Evaluate Large Language Models as Scientific Research Assistants*
- 102. C. Conroy, [+14 coauthors including **Y.-S. Ting**], The Open Journal of Astrophysics, submitted *Birth of the Galactic Disk Revealed by the H3 Survey*
- 101. J. Han, [+6 coauthors including **Y.-S. Ting**], *The Astrophysical Journal Letters*, submitted *Our Halo of Ice and Fire: Strong Kinematic Asymmetries in the Galactic Halo*
- 100. V. Chandra, [+13 coauthors including **Y.-S. Ting**], *The Astrophysical Journal*, submitted *All-Sky Kinematics of the Distant Halo: The Reflex Response to the LMC*
- 99. Y. Li, A. Ji, R. Ezzeddine, Y. Yao, Y.-S. Ting, et al., The Astrophysical Journal, submitted NoPayne: Full Non-LTE Stellar Spectral Emulator I. Methods and application on Gaia-ESO Benchmark Stars
- 98. J. Speagle, [+21 coauthors including **Y.-S. Ting**], *The Astrophysical Journal*, submitted Deriving Stellar Properties, Distances, and Reddenings using Photometry and Astrometry with brutus
- 97. A. Myszka, [+13 coauthors including Y.-S. Ting], Monthly Notices of the Royal Astronomical Society, in-press. Calibrating the Chemical Content of Galaxies with the SAMI Zoom Survey: A Data Release of 92 Spatially Resolved HII Regions in Nearby Galaxies
- 96. R. Emami, [+16 coauthors including **Y.-S. Ting**], Publications of the Astronomical Society of Australia, in-press. Unraveling the Role of Merger Histories in the Population of Insitu Stars: Linking TNG Simulation to H3 Survey
- 95. X. Han, H. Wang, G. Carraro, M. Lopez-Corredoira, **Y.-S. Ting**, et al., *The Astrophysical Journal*, in-press. *The Structure, Populations and Kinematics of the Milky Way Central and Inner Bulge with OGLE, APOGEE and Gaia Data*
- 94. T. Woody, [+8 coauthors including Y.-S. Ting], The Astrophysical Journal, 978, 152 The Rapid Formation of the Metal Poor Milky Way
- 93. Q. Sun, S. Wang, T. Gan, C. Ji, Z. Liu, Y.-S. Ting, et al., The Astrophysical Journal, 980, 179 Planets Around Solar Twins/Analogs (PASTA) I.: High Precision Stellar Chemical Abundance for 17 Planet-Hosting Stars and the Condensation Temperature Trend

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- 92. K. Iyer, [+29 coauthors including Y.-S. Ting], The Astrophysical Journal Supplementary Series, 275, 38 pathfinder: A Semantic Framework for Literature Review and Knowledge Discovery in Astronomy
- 91. Q. Lin, [+8 coauthors including **Y.-S. Ting**], Astronomy & Astrophysics, 691, A331 CLAP-I: Resolving Miscalibration for Deep Learning-Based Galaxy Photometric Redshift Estimation
- 90. J. Lee, [+8 coauthors including Y.-S. Ting], The Astrophysical Journal, 975, 38 Inferring Cosmological Parameters on SDSS via Domain-Generalized Neural Networks and Lightcone Simulations
- G. Wang, H. Wang, Y. Luo, Y.-S. Ting, et al., The Astrophysical Journal, 974, 219 Galactic-Seismology Substructures and Streams Hunter with LAMOST and Gaia. I. Methodology and Local Halo Results
- J. Speagle, [+21 coauthors including Y.-S. Ting], The Astrophysical Journal, 970, 121 Mapping the Milky Way in 5-D with 170 Million Stars
- 87. G. Limberg, [+5 coauthors], **Y.-S. Ting**, et al., *Monthly Notices of the Royal Astronomical Society*, 530, 2525 Extending the Chemical Reach of the H3 Survey: Detailed Abundances of the Dwarf-galaxy Stellar Stream Wukong/LMS-1

- 86. Zhou, Christensen-Dalsgaard, Asplund, Li, Trampedach, **Ting** & Rorsted, *The Astrophysical Journal*, 962, 118 Does the ν_{max} Scaling Relation Depend on Metallicity? Insights from 3D Convection Simulations
- 85. J. Shen, J. Speagle, N. Frankel, T. Mackereth, **Y.-S. Ting**, & J. Bovy, *The Astrophysical Journal*, 960, 84 Disentangling Stellar Age Estimates from Galactic Chemodynamical Evolution
- 84. S. Zou, [+8 coauthors], **Y.-S. Ting**, et al., *The Astrophysical Journal*, 960, 34 DESI Survey Validation Data in the COSMOS/HSC Field: Cool Gas Trace Main Sequence Star-Forming Galaxies at the Cosmic Noon

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- 83. Johnson, Conroy, Johnson, Peter, Cargile, Bonaca, Naidu, & **Y.-S. Ting**, *The Astrophysical Journal*, 526, 5084 Dwarf Galaxy Archaeology from Chemical Abundances and Star Formation Histories
- 82. V. Chandra, [+9 coauthors including Y.-S. Ting], The Astrophysical Journal, 956, 110 Discovery of the Magellanic Stellar Stream Out to 100 Kiloparsecs Notable media mention: News Scientist, Sky & Telescope
- 81. V. Chandra, [+8 coauthors], **Y.-S. Ting**, et al., *The Astrophysical Journal*, 951, 26 Distant Echoes of the Milky Way's Last Major Merger
- 80. R. Wang, A. Luo, S. Zhang, Y.-S. Ting, et al., *The Astrophysical Journal Supplementary Series*, 266, 40 Stellar Parameters and Chemical Abundances Estimated from LAMOST-II DR8 MRS based on Cycle-StarNet
- 79. C. Wang, H. Yuan, M. Xiang, Y.-S. Ting, Y. Huang, & X. Liu, Astronomy & Astrophysics, 674, A129 Spatial Metallicity Variations of Mono Temperature Stellar Populations Revealed by Early-Type Stars in LAMOST
- M. Zhang, M. Xiang, H. Zhang, Y.-S. Ting, Y. Wu & X. Liu, The Astrophysical Journal, 946, 110 Ba-Enhanced Dwarf and Subgiant Stars in the LAMOST Galactic Surveys
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