

# Marc Teng Yen Hon

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<b>Principal Interests</b>	Asteroseismology, Stellar Evolution, Stellar Populations, Machine Learning	
<b>Education</b>	<b>UNSW Sydney, New South Wales, Australia</b> <i>Doctor of Philosophy</i> , Astrophysics, July 2020 Thesis: Deep Learning in Asteroseismology Advisor: Dennis Stello  <b>University of Wollongong, New South Wales, Australia</b> <i>Bachelor of Science Advanced (1<sup>st</sup> Class Honours)</i> , Physics and Mathematics, December 2015 Thesis: Magnetic Vortices in Micro-magnetic Materials Advisor: Alexey Pan	
<b>Awards and Scholarships</b>	NASA Hubble Fellowship Program	2021-present
	Dean's Award for Outstanding PhD Theses	2021
	Nvidia Developer Grant	2018
	UNSW International Scholarship	2016
	University of Wollongong (UoW) University Medal	2015
	UoW Australian Institute of Physics Prize	2015
	UoW Kittel-Lewis Prize	2015
	UoW David Martin Award	2015
	UoW Australian Institute of Physics Prize	2015
<b>Outreach and Presentations</b>	— <i>TESS Science Talk</i> MIT, Cambridge, USA (invited talk)	2022
	— <i>Cosmic Origins Program Seminar Series</i> , NASA Stars Science Interest Group (Invited Seminar)	2022
	— <i>Science, Mathematics and Technology Seminar Series</i> SUTD, Singapore (Invited Seminar)	2022
	— <i>Astronomy Department Colloquium</i> , Yale University, New Haven, USA (Invited Colloquium)	2021
	— <i>Institute for Astronomy Colloquium</i> , University of Hawai'i, USA (Invited Colloquium)	2021

	— <i>TASC-5/KASC-12 Conference</i> , MIT, Cambridge, USA (Contributed Talk)	2019
	— <i>TASC-4/KASC-11 Conference</i> , Stellar Astrophysics Center, Aarhus, Denmark (Contributed Talk)	2018
	— <i>SAGE Seminar</i> , Max Planck Institute for Solar System Research, Göttingen, Germany (Invited Talk)	2018
	— <i>Stars in Sydney Conference</i> , Macquarie University, Sydney, Australia (Contributed Talk)	2017
	— <i>TASC-3/KASC-10 Conference</i> , University of Birmingham, Birmingham, UK (Contributed Poster)	2017
<b>Teaching Experience</b>	<b>Research Supervisor, Institute for Astronomy, Hawai'i</b> ASTR699 Research Program Supervisor (1 student) Undergraduate Program Guest Lecturer	2022 Spring 2022
	<b>Academic Tutor, School of Physics, UNSW Sydney</b> Third-year Astrophysics Tutor Undergraduate Program Guest Lecturer	Fall 2019 2018
	<b>Research Supervisor, School of Physics, UNSW Sydney</b> PhD program co-supervision (1 student) Honours project supervision (1 student) Undergraduate research program (6 students)	2021-present 2019 2017-2019
	<b>Lab Tutor, University of Wollongong</b> 1 <sup>st</sup> and 2 <sup>nd</sup> year Physics	2015
<b>Professional Membership and Service</b>	Institute for Astronomy Colloquium Committee Journal Referee for <i>The Astrophysical Journal</i> Journal Referee for <i>Monthly Notices of the Royal Astronomical Society</i> Journal Referee for <i>Astronomy &amp; Astrophysics</i> Astronomical Society of Australia Member APOKASC-2 Collaboration TESS Asteroseismic Science Consortium <i>Kepler</i> Asteroseismic Science Consortium	2022-present 2020-present 2019-present 2018-present 2017-2021 2018-present 2016-present 2016-present
<b>Proposals</b>	Fossil Magnetic Fields at the Surface of Seismically Peculiar Red Giants, CHFT, <b>10h, PI</b> Confirming the First Close-in Planet Surviving Host Giant Star Evolution, Keck I + CHFT, <b>2n + 10h, PI</b> TESS's Ear on The Metal-Poor Milky Way, TESS GI Cycle 5, <b>Co-I</b>	2022 2021-2022 2022

	Exploring the Planet Population Around Evolved Stars with TESS, TESS GI Cycle 4, <b>Co-I</b>	2021
	The K2-HERMES follow-up program, AAT, <b>69n, Co-I</b>	2016-2019
	The HERMES-TESS program, AAT, <b>31n, Co-I</b>	2016-2018
<b>Selected Press</b>	"NASA's TESS Tunes into an All-sky 'Symphony' of Red Giant Stars", <a href="#">NASA</a>	Aug 2021
	"An all-sky red giant star symphony", <a href="#">EarthSky</a>	Aug 2021
	"Stellar pulses are transformed into a celestial symphony", <a href="#">Space.com</a>	Aug 2021
	"How AI Can Determine the Future of Red Giants Like Our Sun", <a href="#">Nvidia Blog</a>	Aug 2017
	"Scientists Are Using Artificial Intelligence to Plot the Galaxy", <a href="#">Inverse</a>	May 2017
<b>Observing Experience</b>	Anglo-Australian Telescope 3.9 meter, HERMES spectograph	9 nights
<b>References</b>	Daniel Huber Assistant Astronomer (faculty) Institute for Astronomy University of Hawai'i – Manoa	Email: <a href="mailto:huberd@hawaii.edu">huberd@hawaii.edu</a>
	Dennis Stello Associate Professor School of Physics UNSW Sydney	Email: <a href="mailto:d.stello@unsw.edu.au">d.stello@unsw.edu.au</a>
	Marc Pinsonneault Professor Department of Astronomy The Ohio State University	Email: <a href="mailto:pinsonneault.1@osu.edu">pinsonneault.1@osu.edu</a>

## PUBLICATION LIST

**Summary:** 31 total, 7 first author; 872+ citations; h-index<sup>1</sup>: 17

**First Author Publications**

1. **Hon, M.**; Kuszlewicz, J. S.; Huber, D.; et al.. *"HD-TESS: An Asteroseismic Catalog of Bright Red Giants within TESS Continuous Viewing Zones"*, 2022, AJ, Accepted.
2. **Hon, M.**; Huber, D.; Kuszlewicz, J. S.; et al.. *"A 'Quick Look' at All-Sky Galactic Archeology with TESS: 158,000 Oscillating Red Giants from the MIT Quick-Look Pipeline"*, 2021, ApJ, 919, 131.
3. **Hon, M.**; Bellinger, E. P.; Hekker, S.; et al.. *"Asteroseismic Ages of Subgiant Stars with Deep Learning"*, 2020, MNRAS, 499, 2445.
4. **Hon, M.**; Stello, D.; García, R. A.; et al.. *"A search for red giant solar-like oscillations in all Kepler data"*, 2019, MNRAS, 485, 5616.
5. **Hon, M.**; Stello, D.; Zinn, J.. *"Detecting Solar-like Oscillations in Red Giants with Deep Learning"*, 2018, ApJ, 859, 64.
6. **Hon, M.**; Stello, D.; Yu, J.. *"Deep learning classification in asteroseismology using an improved neural network: results on 15 000 Kepler red giants and applications to K2 and TESS data"*, 2018, MNRAS, 476, 3233.
7. **Hon, M.**; Stello, D.; Yu, J.. *"Deep learning classification in asteroseismology"*, 2017, MNRAS, 469, 4578.

**Contributing Author Publications: Detecting/Characterizing Red Giant Oscillations**

8. Borre, C. C. ; Aguirre Børsen-Koch, V.; Helmi, A.; et al. including **Hon, M.**. *"Age determination of galaxy merger remnant stars using asteroseismology "*, 2022, MNRAS, 514, 2527.
9. Sharma, S. ; Stello, D.; Zinn, J. C.; et al. including **Hon, M.**. *"The K2 Galactic Archaeology Program: Overview, target selection and survey properties"*, 2022, MNRAS, accepted.
10. Zinn, J. C. ; Stello, D.; Elsworth, Y.; et al. including **Hon, M.**. *"The K2 Galactic Archaeology Program Data Release 3: Age-abundance patterns in C1-C8, C10-C18"*, 2022, ApJ, 926, 191.
11. Audenart, J.; Kuszlewicz, J. S. ; Handberg, R.; et al. including **Hon, M.**. *"TESS Data for Asteroseismology (T'DA) Stellar Variability Classification Pipeline: Set-Up and Application to the Kepler Q9 Data "*, 2021, AJ, 162, 209.
12. Grunblatt, S. K.; Zinn, J. C. ; Price-Whelan, A. M.; et al. including **Hon, M.**. *"Age-dating Red Giant Stars Associated with Galactic Disk and Halo Substructures"*, 2021, ApJ, 916, 19.

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<sup>1</sup>Bibliographical source: NASA's ADS, the most up-to-date source of astronomical journal publications.

13. Zinn, J. C. ; Stello, D.; Elsworth, Y.; et al. including **Hon, M.**. "*The K2 Galactic Archaeology Program Data Release 2: Asteroseismic Results from Campaigns 4, 6, and 7*", 2020, ApJS, 251, 26.
14. Silva Aguirre, V.; Stello, D.; Stokholm, A; et al. including **Hon, M.**. "*Detection and Characterization of Oscillating Red Giants: First Results from the TESS Satellite*", 2020, ApJL, 889, 2.
15. Grunblatt, S.; Huber, D.; Gaidos, E; et al. including **Hon, M.**. "*Giant planet occurrence within 0.2 AU of low-luminosity red giant branch stars with K2*", 2019, AJ, 158, 227.
16. Bonanno, A.; Corsaro, E.; Del Sordo, F.; et al. including **Hon, M.**. "*Acoustic oscillations and dynamo action in the G8 sub-giant EK Eridani*", 2019, A&A, 628, 7.
17. Huber, D.; Chaplin, W. J.; Chontos, A.; et al. including **Hon, M.**. "*A Hot Saturn Orbiting an Oscillating Late Subgiant Discovered by TESS*", 2019, AJ, 157, 14.
18. Sharma, S.; Stello, D.; Bland-Hawthorn, J.; et al. including **Hon, M.**. "*The K2-HERMES Survey: Age and Metallicity of the Thick Disc*", 2019, MNRAS, 490, 5335.

#### Contributing Author Publications: Asteroseismic Data Analysis and Machine Learning

19. Stello, D. ; Saunders, N.; Grunblatt, S.; et al. including **Hon, M.**. "*TESS asteroseismology of the Kepler red giants*", 2022, MNRAS, 512, 1677.
20. Reyes, C. ; Stello, D.; **Hon, M.**; et al.. "*Vetting asteroseismic  $\Delta\nu$  measurements using neural networks*", 2022, MNRAS, 511, 5578.

#### Contributing Author Publications: Red Giant Evolutionary States

21. Sharma, S.; Hayden, M. R.; Bland-Hawthorn, J.; et al. including **Hon, M.**. "*Fundamental relations for the velocity dispersion of stars in the Milky Way*", 2021, MNRAS, 506, 1761.
22. Hill, M. L.; Kane, S.R.; Campante, T. L.; M. N.; et al. including **Hon, M.**. "*Asteroseismology of iota Draconis and Discovery of an Additional Long-Period Companion*", 2021, AJ, accepted.
23. Martell, S. L.; Simpson, J. D.; Subramaniam, A.G.; et al. including **Hon, M.**. "*The GALAH survey: a census of lithium-rich giant stars*", 2021, MNRAS, 505, 5340.
24. Campante, T. L.; Corsaro, E.; Lund, M. N.; et al. including **Hon, M.**. "*TESS Asteroseismology of the known red-giant host stars HD 212771 and HD 203949*", 2019, ApJ, 885, 35.
25. Elsworth, Y.; Hekker, S.; Johnson, J. A.; et al. including **Hon, M.**. "*Insights from the APOKASC Determination of the Evolutionary State of Red-Giant Stars by consolidation of different methods* ", 2019, MNRAS, 489, 4641.

26. Arentoft, T.; Grundahl, F.; White, T. R.; et al. including **Hon, M.**. “*Asteroseismology of the Hyades red giant and planet host  $\epsilon$  Tauri*”, 2019, A&A, 622, 12.
27. Silva Aguirre, V.; Bojsen-Hansen, M.; Slumstrup, D.; et al. including **Hon, M.**. “*Confirming chemical clocks: asteroseismic age dissection of the Milky Way disc(s)*”, 2018, MNRAS, 475, 5487.
28. Wu, Y.; Xiang, M.; Bi, S.; et al. including **Hon, M.**. “*Mass and age of red giant branch stars observed with LAMOST and Kepler*”, 2018, MNRAS, 475, 3633.
29. Yu, J.; Huber, D.; Bedding, T. R.; et al. including **Hon, M.**. “*Asteroseismology of 16,000 Kepler Red Giants: Global Oscillation Parameters, Masses, and Radii*”, 2018, ApJS, 236, 18.

#### Contributing Author Publications: Contributed Observational Data

30. Wittenmyer, R. A.; Sharma, S.; Stello, D.; et al. including **Hon, M.**. “*The K2-HERMES Survey. I. Planet-candidate Properties from K2 Campaigns 1-3*”, 2018, AJ, 155, 10.
31. Sharma, S.; Stello, D.; Buder, S.; et al. including **Hon, M.**. “*The TESS-HERMES survey data release 1: high-resolution spectroscopy of the TESS southern continuous viewing zone*”, 2018, MNRAS, 473, 2004.