

Sihao Cheng (程思浩)

Curriculum Vitae / Jan, 2021

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EDUCATION

Ph.D. candidate, Physics and Astronomy 2017–present
Johns Hopkins University, United States
advisor: Brice Ménard

B.Sc. (with Honors), Astronomy 2012–2016
Peking University, China advisor: Eric W. Peng

RESEARCH INTEREST

Extracting physical information from large data set with statistical methods
Astrophysical topics including observational cosmology, stellar physics, and extrasolar planets

AWARDS

2020 Outstanding Publication in Astrostatistics Award (student category) Jan 2021
IAU travel grant for Symposium No.357 Oct 2019
Lin-Qiao Prize for Undergraduate Research Sept 2015
Wu-Si Scholarship May 2015, May 2014

PUBLICATIONS

[A new approach to observational cosmology using the scattering transform](#)

Introduced a new statistic inspired by convolutional neural nets to observational cosmology, and demonstrated that it outperforms classic estimators

Sihao Cheng, Yuan-Sen Ting, Brice Ménard, and Joan Bruna
2020, *MNRAS*, 499, 5902

[An Increase in Small-planet Occurrence with Metallicity for Late-type Dwarf Stars in the Kepler Field and Its Implications for Planet Formation](#)

Cicero X. Lu, Kevin C. Schlaufman, and **Sihao Cheng**
2020, *AJ*, 160, 253

[Multi-Gigayear White Dwarf Cooling Delays from Clustering-Enhanced Gravitational Sedimentation](#)

Evan B. Bauer, Josiah Schwab, Lars Bildsten, and **Sihao Cheng**
2020, *ApJ*, 902, 93

[Forever young white dwarfs: when stellar ageing stops](#)

María E. Camisassa, Leandro G. Althaus, Santiago Torres, Alejandro H. Córscico, **Sihao Cheng**, Alberto Rebassa-Mansergas
2020, arXiv:2008.03028

[A Gravitational Redshift Measurement of the White Dwarf Mass–Radius Relation](#)

Used populational gravitational redshift to probe the white dwarf mass–radius relation over a wide mass range

Vedant Chandra, Hsiang-Chih Hwang, Nadia L. Zakamska, and **Sihao Cheng**
2020, *ApJ*, 899, 146

[Carbon star formation as seen through the non-monotonic initial–final mass relation](#)

Marigo, P. **et al.**

2020, *Nature Astronomy*

[Double White Dwarf Merger Products among High-mass White Dwarfs](#)

Measured the white dwarf merger rate with unprecedented high precision using a novel kinematic method

Sihao Cheng, Jeffrey D. Cummings, Brice Ménard, and Silvia Toonen

2020, *ApJ*, 891, 160

[Two delays in white dwarf evolution revealed by *Gaia*](#)

Sihao Cheng

2019, *Proceedings of IAU*, 15 (S357), 175

[A Cooling Anomaly of High-mass White Dwarfs](#)

Discovered an unexpected, extremely long cooling delay in a population of white dwarfs using *Gaia* data

Sihao Cheng, Jeffrey D. Cummings, and Brice Ménard

2019, *ApJ*, 886, 100

[Meteor spectral observation with DSLR, normal lens and prism](#)

Sihao Cheng and Simiao Cheng

2011, *JIMO*, 39, 39

TALKS & PRESENTATIONS

Cosmology seminar at IPMU, online	Jan 2021
Cosmology seminar at IAP, online	Dec 2020
Lunch talk at University of Virginia/NRAO, online	Nov 2020
Cosmology/machine learning journal club at Fermilab, online	Oct 2020
Seminar at DIRAC, University of Washington, online	Oct 2020
(invited) Cosmology seminar at Duke University, online	Oct 2020
Seminar at Columbia University, online	Oct 2020
Astrophysics and Cosmology Seminar at University of Arizona, online	Sep 2020
Cosmology journal club at University of Oxford, online	Sep 2020
Contributed Talk, <i>Cosmology from Home</i> , online	Aug 2020
Astrophysics/Cosmology Seminar at University of Sussex, online	July 2020
Lunch Seminar at Indiana University, Bloomington, IN	Mar 2020
CTC seminar at University of Maryland, College Park, MD	Mar 2020
Thunch seminar at Princeton University and astro-coffee at IAS, Princeton, NJ	Feb 2020
A special seminar at Boston University, Boston, MA	Feb 2020
(invited) The Stars & Planets Seminar at Harvard-Smithsonian CfA, Cambridge, MA	Feb 2020
Contributed Talk, <i>White Dwarfs as Probes of Fundamental Physics and Tracers of Planetary, Stellar, and Galactic Evolution</i> , Hilo, HI (IAU grant awarded for travel)	Oct 2019
Contributed Talk, <i>The Beginnings and Ends of Double White Dwarfs</i> , Copenhagen, Denmark (grant awarded for travel)	July 2019
Poster: 2019 STScI Spring Symposium: <i>The Deaths and Afterlives of Stars</i> , Baltimore, MD	Apr 2019

TEACHING EXPERIENCE

Teaching assistant, Johns Hopkins University, Stars & the Universe	2019
Teaching assistant, Johns Hopkins University, Physics I & II	2017–2018

REFERENCES

Prof. Brice Ménard
Associate Professor, Johns Hopkins University

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Dr. Yuan-Sen Ting
Assistant professor (starting from Dec 2020), Australian National University

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Associate Professor, Johns Hopkins University

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