Sihao Cheng (程思浩)
Curriculum Vitae / Jul, 2020

Bloomberg 506
Department of Physics and Astronomy
Johns Hopkins University
3400 N Charles Street, Baltimore, MD 21218

s.cheng@jhu.edu
https://sihaocheng.github.io
443-207-1532
ORCID: 0000-0002-9156-7461

EDUCATION

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

Bachelor (with Honors) of Science, Astronomy — 2012–2016
Peking University, China

RESEARCH INTEREST

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

PUBLICATIONS

A new approach to observational cosmology using the scattering transform
Introduced a new set of statistics inspired by convolutional neural nets to observational cosmology, and demonstrated that it outperforms classical estimators
Sihao Cheng, Yuan-Sen Ting, Brice Ménard, and Joan Bruna
2020, submitted to *MNRAS*, arXiv:2006.08561

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*, accepted

Carbon star formation as seen through the non-monotonic initial–final mass relation
Marigo, P., Cummings, J. D., Curtis, J. L., Kalirai J., Chen, Y., Tremblay, P.-E., Ramirez-Ruiz, E., Bergeron, P., Bladh, S., Bressan, A., Girardi, L., Pastorelli, G., Trabucchi, M., **Cheng, S.**, Aringer, B., & Dal Tio, P
2020, *Nature Astronomy*

Two delays in white dwarf evolution revealed by *Gaia*
Sihao Cheng
2020, *Proceedings of IAU Symposium No. 357*, in press

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

A Cooling Anomaly of High-mass White Dwarfs
Discovered a population of white dwarfs with an extremely long cooling delay unpredicted by existing models, which requires unknown extra energy source
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

Astrophysics/Cosmology Seminar at University of Sussex, UK — 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, Princeton, NJ — Feb 2020
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, *White Dwarfs as Probes of Fundamental Physics and Tracers of Planetary, Stellar, and Galactic Evolution*, Hilo, HI (IAU grant awarded for travel) — Oct 2019
Contributed Talk, *The Beginnings and Ends of Double White Dwarfs*, Copenhagen, Denmark (grant awarded for travel) — July 2019
Poster: 2019 STScI Spring Symposium: *The Deaths and Afterlives of Stars*, Baltimore, MD — Apr 2019

AWARDS

Lin-Qiao Prize for Undergraduate Research — Sept 2015
Wu-Si Scholarship — May 2015, May 2014

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 — menard@jhu.edu
Associate Professor, Johns Hopkins University — 1-443-345-6791

Dr. Yuan-Sen Ting — ting@ias.edu
Assistant professor (starting from Dec 2020), Australian National University

Prof. Nadia L. Zakamska — zakamska@jhu.edu
Associate Professor, Johns Hopkins University — 1-410-516-6657