

CHUN-HAO TO

CONTACT

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RESEARCH INTERESTS

Observational and Computational cosmology

Cluster abundance cosmology, Large-scale structure, Combined-probe analyses, Galaxy-halo connection

EDUCATION

Ph.D in Physics

Department of Physics, Stanford University, CA, USA

2016-Present

B.S. in Physics

Department of Physics, National Taiwan University, Taipei, Taiwan

2011-2015

AWARDS

- Dark Energy Survey builder status (for 2 FTE years of infrastructure work) *2020*
- DES Early Career Scientist *2019*
Awarded US\$1500 for participating in the Summer and Fall Dark Energy Survey Collaboration Meetings
- Dean's Award of College of Science, National Taiwan University *June 2015*

INTERDISCIPLINARY AWARDS

- Stanford CS230/Deep Learning, Project Award:
Efficient Neural Network Implementation of the UniverseMachine; Awarded US\$400 AWS credit

SCIENTIFIC COLLABORATION

- Dark Energy Survey (DES)
Cluster, Simulation, Theory and combined-probe, and Weak lensing working groups

TEACHING AND OUTREACH

- The Origin and Development of the Cosmos *Winter 2020*
- Astronomy Laboratory and Observational Astronomy *Fall 2018*
- Electricity and Magnetism Lab *Spring 2017*
- Teacher, Stanford ESP Splash! Program *Spring 2017*

MENTORING EXPERIENCE

- Kathlynn Simotas, undergrad student at Stanford, Quantifying redMaPPer cluster systematics using galaxies with spectroscopic redshifts, 2019–ongoing

PUBLICATIONS – LEAD AUTHOR

ADS full list*

1. **To, C.-H.**, Krause, E., Rozo, E., et al. 2020, “Combination of cluster number counts and two-point correlations: Validation on Mock Dark Energy Survey”, *arXiv e-prints*, arXiv:2008.10757
2. **To, C.-H.**, Reddick, R. M., Rozo, E., Rykoff, E., & Wechsler, R. H. 2020, “RedMaPPer: Evolution and Mass Dependence of the Conditional Luminosity Functions of Red Galaxies in Galaxy Clusters”, *The Astrophysical Journal*, 897, 15
3. **To, C.-H.**, Wang, W.-H., & Owen, F. N. 2014, “Star Formation Rate and Extinction in Faint $z \sim 4$ Lyman Break Galaxies”, *The Astrophysical Journal*, 792, 139

OTHER PUBLICATIONS (SELECTED)

1. Adhikari, S., Shin, T.-hyeon ., Jain, B., et al. 2020, “Probing galaxy evolution in massive clusters using ACT and DES: splashback as a cosmic clock”, *arXiv e-prints*, arXiv:2008.11663
2. Abbott, T. M. C., Aguena, M., Alarcon, A., et al. 2020, “Dark Energy Survey Year 1 Results: Cosmological constraints from cluster abundances and weak lensing”, *Physical Review D*, 102, 023509
3. Korytov, D., Hearin, A., Kovacs, E., et al. 2019, “CosmoDC2: A Synthetic Sky Catalog for Dark Energy Science with LSST”, *The Astrophysical Journal Supplement Series*, 245, 26
4. Chuang, C.-H., Yepes, G., Kitaura, F.-S., et al. 2019, “UNIT project: Universe N-body simulations for the Investigation of Theoretical models from galaxy surveys”, *Monthly Notices of the Royal Astronomical Society*, 487, 48
5. Zhang, Y., Yanny, B., Palmese, A., et al. 2019, “Dark Energy Survey Year 1 Results: Detection of Intracluster Light at Redshift 0.25”, *The Astrophysical Journal*, 874, 165

PROGRAMMING SKILLS

Extensive experiences on Python, Pytorch, C/C++, and IDL

REFERENCES

- Risa H. Wechsler Email: rwechsler@stanford.edu
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