

# CHUN-HAO TO

## CONTACT

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## RESEARCH INTERESTS

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### **Observational and Computational cosmology**

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

## EMPLOYMENT

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**CCAPP postdoctoral Fellow, Ohio State University** *2021–Present*

## EDUCATION

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**Ph.D in Physics** *2016–2021*

Department of Physics, Stanford University, CA, USA

**B.S. in Physics** *2011–2015*

Department of Physics, National Taiwan University, Taipei, Taiwan

## AWARDS

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

## SCIENTIFIC COLLABORATION

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- Dark Energy Survey (DES)
  - Analysis Co-lead of cluster cosmology key projects
  - Active member of cluster, simulation, theory and combined-probes, and weak lensing working groups
  - Internal reviewer for various DES papers

## TEACHING AND OUTREACH

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- 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

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

## PUBLICATIONS

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103 publications (68 refereed in major science journals, all others pending refereeing) with a total of 1561 citations (1396 citations in refereed Journals), h-index=22 according to NASA/ADS Metrics Summary.

First author publications:

1. **To, C.-H.**, Rozo, E., Krause, E., Wu, H.-Y., Wechsler, R. H., & Salcedo, A. N. 2023, “LINNA: Likelihood Inference Neural Network Accelerator”, *Journal of Cosmology and Astroparticle Physics*, 2023, 016
2. **To, C.-H.**, Krause, E., Rozo, E., et al. 2021, “Dark Energy Survey Year 1 Results: Cosmological Constraints from Cluster Abundances, Weak Lensing, and Galaxy Correlations”, *Physical Review Letters*, 126, 141301
3. **To, C.-H.**, Krause, E., Rozo, E., et al. 2021, “Combination of cluster number counts and two-point correlations: validation on mock Dark Energy Survey”, *Monthly Notices of the Royal Astronomical Society*, 502, 4093
4. **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
5. **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

## PROGRAMMING SKILLS

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

## PRESENTATIONS

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\* Invited Presentations

<b>2022</b>	• ICML International Conference on Machine Learning	<i>July</i>
	• *Plenary talk at Dark Energy Survey Collaboration Meeting	<i>May</i>
	• *Colloquium, LMU	<i>May</i>
	• Colloquium, ASIAA	<i>May</i>
	• Advances in Cosmology through Numerical Simulations	<i>May</i>
	• Galaxy Clusters 2022: Challenging Our Cosmological Perspectives	<i>April</i>
<b>2021</b>	• Cluster Mass 2020	<i>Sep</i>
	• Colloquium, ASIAA	<i>Jan</i>

<b>2020</b>	• Survey science group meeting, University of Chicago	<i>Nov</i>
	• *Gravitational lensing group seminar, LMU	<i>Nov</i>
	• *Seminar at Stony Brook University	<i>Nov</i>
	• *Dark Sector Meeting, JPL	<i>Oct</i>
	• Cosmology Lunch, Princeton University	<i>Oct</i>
	• Cosmic surveys meeting, Fermilab	<i>Oct</i>
	• *CCAPP Seminar, OSU	<i>Oct</i>
	• *Cosmology Seminar, University of California, Berkeley	<i>Sep</i>
	• *11th CMB-S4 Workshop: Cosmology and Astrophysics in the Next Decade	<i>Aug</i>
	• Cosmology from Home	<i>Aug</i>
	• Dark Energy Survey Virtual Collaboration Meeting	<i>May</i>
<b>2019</b>	• Dark Energy Survey Collaboration Meeting	<i>Nov</i>
	• Cosmic Controversies	<i>Sep</i>
	• Great Lake Cosmology Workshop	<i>Aug</i>
	• Dark Energy Survey Collaboration Meeting	<i>May</i>
	• Panchromatic Panoramic Studies of Galaxy Clusters	<i>March</i>
<b>2018</b>	• Dark Energy Survey Y3KP workshop	<i>Oct</i>
	• Tucson DECaLS Workshop	<i>Aug</i>
	• Santa Cruz Galaxy Workshop	<i>Aug</i>

## REFERENCES

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- Eduardo Rozo Email: erozo@email.arizona.edu  
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