

# TAWEEWAT SOMBOONPANYAKUL

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## EMPLOYMENT

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**Chulalongkorn University** *Nov 2023 - present*  
Lecturer in the Physics Department

**Stanford University** *Aug 2021 - Oct 2023*  
Kavli Fellow - Institutional fellowship at KIPAC

## EDUCATION

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**Massachusetts Institute of Technology** *Aug 2015 - Aug 2021*  
Ph.D. in Physics, Advisor: Prof. Michael McDonald  
Thesis: The Clusters Hiding in Plain Sight (CHiPS) survey

**University of Chicago** *Sept 2011 - Jun 2015*  
BA in Physics with specialization in Astrophysics  
Honor Thesis Advisor: Prof. Hsiao-Wen Chen

## AWARDS

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2021 **The Kavli Fellowship**, Postdoctoral Research Fellowship, Stanford University  
2019 Representative to Lindau Nobel Laureate Meetings, Lindau, Germany  
2015 **MIT Clark Fellow**, Graduate Research Fellowship, MIT  
2015 **Phi Beta Kappa, Dean's List**, The University of Chicago  
2014 **The FOTI Global Leadership Award**, The University of Tokyo  
2014, 2015 **The Maroon Key Society**, The University of Chicago  
2013 **Walter and Fay Selove Prize in Physics**, The University of Chicago

## SELECTED PRESS

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- Daily Galaxy – “690 Trillion Suns-new look at an ancient quasar so bright it obscured a massive galaxy cluster”, Oct. 2021
- MIT News Press – “MIT astronomers discover galaxy clusters hiding in plain sight”, Mar. 2021
- NASA Press – “A weakened black hole allows its galaxy to awaken”, Nov. 2019
- MIT News Press – “Sprawling galaxy cluster found hiding in plain sight”, Aug. 2018
- Space.com Press – “Huge Galaxy Cluster Found Hiding in Plain Sight”, Jun. 2018

## OBSERVING

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Successful Telescope Proposal as PI or as the majority contributor

- Thai National Telescope (TNO), 2024, 3 nights, “LRS Spectroscopy of potential spiral bright cluster galaxies (BCGs) at  $z \sim 0.4$ ”
- Thai National Radio Telescope (TNRT), 2024, 9hr, “CHiPS1911+4455: Detecting radio emission in the cooling flow of a massive, merging cluster”
- Chandra Cycle 25, 2023, 57ks, “Deep X-ray Observations of a highly luminous cool-core galaxy cluster at  $z \sim 0.4$ ”
- Chandra Cycle 24, 2022, 89ks, “Deep X-ray Observations of a new, highly luminous cool-core galaxy cluster at  $z \sim 0.6$ ”
- Chandra Cycle 23, 2021, 133ks, “CHiPS1911+4455: A Cooling Flow in a Merging Cluster”
- Hubble, 2019 Mid Cycle, 2 orbits, “Imaging a Rare Starburst Central Galaxy in a Merging Cluster”
- Magellan, 2018B, 3 nights, “Spectroscopic Follow Up for the CHiPS galaxy clusters candidates”
- Chandra, 2018, 137ks, “A Unique Sample of Extreme-BCG Clusters at  $0.2 < z < 0.6$ ”
- Magellan, 2017B, 3 nights, “The CHiPS Surveys: Clusters Hiding in Plain Sight”

- Magellan, 2016A, 3 nights, “The CHiPS Surveys: Clusters Hiding in Plain Sight”

#### Observing Experience

- Magellan Telescope, Las Campanas Observatory (LCO), Long-slit spectroscopy with LDSS3, 2018
- Magellan Telescope, (LCO), Optical imaging with PISCO, 2017B
- Magellan Telescope, (LCO), Optical imaging with PISCO, 2017A
- Magellan Telescope, (LCO), Optical imaging with PISCO, 2016B

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## TEACHING AND MENTORING

### Mentoring

- Tutoring low income high school students at Peninsula Bridge programs, Palo Alto, Fall 2022
- Supervising undergraduate students for summer research projects, Stanford, 2022
- Mentoring 6 undergraduate students in Physics at MIT for academic and social supports, MIT, 2020 (Austin Chin, Sydney Kim, Michael Kraus, Armando Martinez, Sarah Zhao, Amanda Zheng)

### Undergraduate/Graduate Taught Courses

- Graduate Teaching Assistant in 8.01 Physics I - Mechanics at MIT, Fall 2020
- Graduate Teaching Assistant, for Prof. Michael McDonald in 8.902 graduate-level Astrophysics II at MIT, Fall 2019
- Graduate Teaching Assistant, for Prof. Kiyoshi Masui in 8.01 Physics I - Mechanics at MIT, Fall 2018
- College Core Tutor Program for Physics at the University of Chicago, 2015

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## SERVICE

- Chandra Peer Review Panel, NASA, Cycle 24, 2022
- Astrophysics Graduate Admission Committee, Stanford University, 2022, 2023
- Session Chair, “Galaxy Cluster I”, 235th Meeting American Astronomical Society, 2020

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## OUTREACH

- Organizing Committee at KIPAC Community Day, Stanford, CA, Apr. 2023
- Volunteer at College of San Mateo, “Family Science Day”, San Mateo, CA, Sep. 2022
- Invited Speaker in the **Benjamin Dean Astronomy Lecture** series, “Decoding the Mystery of Dark Matter Using Galaxy Clusters”, California Academy of Sciences, San Francisco, CA, Aug. 2022
- Guest Speaker at Sacred Heart Prep School, Atherton, CA, May. 2022
- Guest Speaker at BASIS Independent Silicon Valley School, San Jose, CA, Mar. 2022 (virtual)
- Member of MIT Astrogazers, Observing with the public on the sidewalk, 2017-2021
- Volunteer at Vativo STEM Alliance Science Festival, Apr. 2019
- Volunteer at Cambridge Science Festival, “Solar Observing”, Apr. 2018
- Volunteer at MIT Museum, “Nautical Day with Celestial Navigation”, Mar./Nov. 2018
- Volunteer at MIT Museum, “Mathernoon Day”, Mar./Nov. 2018
- Public Speaker at Mahidol University, “Impact of Active Galaxies on Clusters”, Aug. 2017
- World Wide Telescope Ambassadors at Harvard University, 2016
- Organizer for a Yerkes Observatory Weekend Workshop, WI, 2014
- President of Ryerson Astronomical Society at the University of Chicago, 2013-2014

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## RESEARCH PRESENTATION

### Invited Talks (Conference)

- 19th Siam Physics Congress 2024, Ayutthaya, TH, Jun. 2024 “CHIPS1911+4455: A Cooling flow in a Mering Cluster”

## Contributed Talks (Conferences)

- East Asian Young Astronomers Meeting (EAYAM) 2024, Chiang Mai, TH, Jan. 2023 “Why and How Do We Study Relaxed Galaxy Clusters?”
- High-Resolution X-ray Spectroscopy: A Chandra Workshop, Cambridge, MA, Aug. 2023 “Advancing X-ray Background Modeling for Enhanced Data Analysis”
- 237th Meeting American Astronomical Society, AAS, Jan. 2021, “Galaxy Clusters and AGN Feedback” (virtual)
- 235th Meeting American Astronomical Society, AAS, Honolulu, HI, Jan. 2020, “Clusters Hiding in Plain Sight (CHiPS)”
- Planetary Systems: A Synergistic View, ICISE, Quy Nhon, Vietnam, Jul. 2015, “Transiting Exoplanet’s Impact Parameter: Long vs Short Cadence”
- UChicago-Northwestern Exoplanet Workshop, Alder Planetarium, IL, 2014, “Transiting Exoplanet’s Impact Parameter: Long vs Short Cadence”

## Seminars

- Stanford University, Stanford, CA, Aug. 2023
- National Astronomical Research Institute of Thailand, Chiang Mai, Thailand, Feb. 2023
- University of Southampton, Southampton, UK, Mar. 2022 (virtual)
- University of North Texas, Denton, TX, Feb. 2022 (virtual)
- University of California, Santa Cruz, Santa Cruz, CA, Feb. 2021 (virtual)
- The Center for Astrophysics | Harvard & Smithsonian, Cambridge, MA, Feb. 2021 (virtual)
- California Institute of Technology, Pasadena, CA, Feb. 2021 (virtual)
- Stanford University, Stanford, CA, Dec. 2020 (virtual)
- Space Telescope Science Institute, Baltimore, MD, Nov. 2020 (virtual)
- University of Michigan, Ann Arbor, MI, Oct. 2020 (virtual)
- The University of Missouri–Kansas City, Kansas City, MO, Aug. 2020 (virtual)
- National Astronomical Research Institute of Thailand, Chiang Mai, Thailand, Jan. 2019
- Chiang Mai University, Chiang Mai, Thailand, Jan. 2019
- Kasetsart University, Bangkok, Thailand, Jan. 2019
- Mahidol University, Bangkok, Thailand, Jan. 2019
- Carnegie Observatories, Pasadena, Dec. 2018

## Conference Posters

- 20th Meeting High Energy Astrophysics Division (HEAD), Waikoloa Village, HI, Mar. 2023
- 19th Meeting High Energy Astrophysics Division (HEAD), Pittsburgh, PA, Mar. 2022
- Tracing Cosmic Evolution with Clusters of Galaxies, Sesto (BZ), Italy, Jul. 2019
- 69th Lindau Nobel Laureate Meeting, Lindau, Germany, Jul. 2019
- 17th Meeting High Energy Astrophysics Division (HEAD), Monterey, CA, Mar. 2019
- SnowCluster – The Physics of Galaxy Clusters, Snowbird, UT, Mar. 2018
- Chandra Science for the Next Decade, Cambridge, MA, Aug. 2016
- 227th Meeting American Astronomical Society, AAS, Kissimmee, FL, Jan. 2016

## REFEREED PUBLICATIONS

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1. Hernández-Lang, D., Zenteno, A., Diaz-Ocampo, A., ..., **Somboonpanyakul, T.**, et al. (2023), Correction to: Clash of Titans: A MUSE dynamical study of the extreme cluster merger SPT-CL J0307-6225, MNRAS, 523, 934
2. Ruppin, F., McDonald, M., Hlavacek-Larrondo, J., ..., **Somboonpanyakul, T.**, et al. (2023), Redshift Evolution of the Feedback-Cooling Equilibrium in the Core of 48 SPT Galaxy Clusters: A Joint Chandra-SPT-ATCA Analysis, ApJ, 948, 49

3. Calzadilla, M. S., Bleem, L. E., McDonald, M., ..., **Somboonpanyakul, T.**, et al. (2023), SPT-CL J2215-3537: A Massive Starburst at the Center of the Most Distant Relaxed Galaxy Cluster, *ApJ*, 947, 44
4. Masterson, M., McDonald, M., Ansarinejad, B., ..., **Somboonpanyakul, T.**, et al. (2023), Evidence for AGN-regulated Cooling in Clusters at  $z$  1.4: A Multiwavelength View of SPT-CL J0607-4448, *ApJ*, 944, 164
5. Strazzullo, V., Pannella, M., Mohr, J. J., ..., **Somboonpanyakul, T.**, et al. (2023), Galaxy populations in the most distant SPT-SZ clusters. II. Galaxy structural properties in massive clusters at  $1.4 \leq z \leq 1.7$ , *A&A*, 669, A131
6. Hernández-Lang, D., Zenteno, A., Diaz-Ocampo, A., ..., **Somboonpanyakul, T.**, et al. (2022), Clash of Titans: A MUSE dynamical study of the extreme cluster merger SPT-CL J0307-6225, *MNRAS*, 517, 4355
7. Olivares, V., Su, Y., Nulsen, P., ..., **Somboonpanyakul, T.**, et al. (2022), AGN feedback duty cycle in Planck SZ selected clusters using Chandra observations, *MNRAS*, 516, L101
8. Khullar, G., Bayliss, M. B., Gladders, M. D., ..., **Somboonpanyakul, T.**, et al. (2022), Synthesizing Stellar Populations in South Pole Telescope Galaxy Clusters. I. Ages of Quiescent Member Galaxies at  $0.3 < z < 1.4$ , *ApJ*, 934, 177
9. Kim, K. J., Bayliss, M. B., Noble, A. G., ..., **Somboonpanyakul, T.**, et al. (2022), A Gradual Decline of Star Formation since Cluster In-fall: New Kinematic Insights into Environmental Quenching at  $0.3 < z < 1.1$ , *arXiv*, arXiv:2207.12491
10. **Somboonpanyakul, T.**, McDonald, M., Noble, A., et al. (2022), The Evolution of AGN Activity in Brightest Cluster Galaxies, *AJ*, 163, 146
11. **Somboonpanyakul, T.**, McDonald, M., Gaspari, M., et al. (2021), The Clusters Hiding in Plain Sight (CHiPS) Survey: Complete Sample of Extreme BCG Clusters, *ApJ*, 910, 60
12. **Somboonpanyakul, T.**, McDonald, M., Bayliss, M., et al. (2021), The Clusters Hiding in Plain Sight (CHiPS) Survey: CHIPS1911+4455, a Rapidly Cooling Core in a Merging Cluster, *ApJL*, 907, L12
13. McDonald, M., McNamara, B. R., Voit, G. M., ..., **Somboonpanyakul, T.**, et al. (2019), Anatomy of a Cooling Flow: The Feedback Response to Pure Cooling in the Core of the Phoenix Cluster, *ApJ*, 885, 63
14. **Somboonpanyakul, T.**, McDonald, M., Lin, H. W., et al. (2018), The Clusters Hiding in Plain Sight (CHiPS) Survey: A First Discovery of a Massive Nearby Cluster around PKS 1353-341, *ApJ*, 863, 122