Yale Astronomy, Kline Biology
Tower, 219 Prospect
New Haven, USA 06511
+1 (203)3439337
cheng-han.hsieh@yale.edu

ORCID: 0000-0003-2803-6358
Personal Website: https://chenghanhsieh.github.io/

CHENG-HAN HSIEH

EDUCATION

2024	**Expected Ph.D. in Astronomy**, Yale University Advisor: Prof. Héctor Arce
2021	**M. S. in Astronomy**, Yale University
2021	**M. Phil. in Astronomy**, Yale University
2014-2018	**B. S.** in Physics, National Tsing Hua University

RESEARCH INTERESTS

Star Formation:	Observation study of the protostellar outflows, streamers in cores and filaments.
Planet Formation:	Searching for disk substructures in the youngest Class 0/I systems.
Interstellar Object:	Dynamical modelling and radio observations of the interstellar objects.

AWARDS AND FELLOWSHIPS

2023	Yale Poorvu Center Public Communication Certificate holder
2022	From Stars to Galaxies II Conference (Sweden) poster award
2020-2022	Government Scholarship for Study Abroad program (Taiwan)
2020-2021	Yale Nathan Hale Associates Scholarship
2019-2020	Yale Henry A. Smith Fellowship
2017	NTHU Physics/Astronomy Poster Competition winner
2017	NTHU Academy Award (Awarded to top 5% of students based on GPA)
2015	NTHU Chinese Writing Center Essay Competition Merit Award
2014	Scientific and Cultural Exchanges of University Students Across the Taiwan Strait Physics Experimental Exploration Competition (representing NTHU)
2014	Sinarmas World Academy Learner Profile Award: Knowledgeable
2013	The Duke of Edinburgh's International Award for Yong People Bronze Award

PUBLICATIONS

Refereed: **5 first-author papers**, First-author citation count: **75 citations**, First author h-index: **5**

1. **Hsieh C.-H.**, Arce H.~G., Li Z.-Y., Dunham M., Offner S., +11 co-authors "The Evolution of Protostellar Outflow Cavities, Kinematics, and Angular Distribution of Momentum and Energy in Orion A: Evidence for Dynamical Cores" 2023, ApJ, 947, 25.

2. **Hsieh C.-H.**, Laughlin G., Arce H.~G., "Evidence that 'Oumuamua is the ~45 Myr-old product of a Molecular Cloud" 2021, ApJ, 917, 20.

3. **Hsieh C.-H.**, Arce H.~G., Mardones D., Kong S., Plunkett A., "Rotating N2D+ filament in LBS23 (Orion B): Do cores inheriting initial angular momentum from the rotating filament?" 2021, ApJ, 908, 92.

4. **Hsieh C.-H.**, Lai S.-P., Cheong P.-I., Ko C.-L., Li Z.-Y., Murillo N.~M., "Determining the physical conditions of extremely young Class 0 circumbinary disk around VLA1623A" 2020, ApJ, 894, 23.

5. **Hsieh C.-. han .**, Hu Y., Lai S.-P., Yuen K.~H., Liu S.-Y., Hsieh I.-T., Ho K.~W., et al., "Tracing magnetic field morphology using the velocity gradient technique in the presence of co self-absorption" 2019, ApJ, 873, 16.

6. Chang, D., **Hsieh, C.-H.**, & Laughlin, G., "Constraints to Efficiently Find Interstellar Object Generated Craters on the Moon" 2023, Research Notes of the American Astronomical Society, 7, 228.

7. **Hsieh C.-H., in prep.** "Legacy survey of Class 0/I disks in Corona australis, Aquila, chaMaeleon, oPhiuchus north, Ophiuchus, Serpens (CAMPOS). I. Protostellar disk formation is magnetically regulated"

8. **Hsieh C.-H., in prep.** "Towards an Observed Protostellar Mass Function for Class 0 Sources: A Method Derived from Jet Properties"

9. **Hsieh C.-H., in prep.** "CAMPOS II: Evolution of disk substructures"

10. **Hsieh C.-H., in prep.** "CAMPOS III: Alignment of circumstellar disk angular momentum in extremely young Class 0/I systems"

TEACHING

2021	Teaching Assistant, Frontiers and Controversy in Astrophysics	ASTRO 160
2020	Teaching Assistant, Introduction to Observational Astronomy	ASTRO 155
2019	Teaching Assistant, Introduction to Relativity and Black Holes	ASTRO 180
2019	Teaching Assistant, Galaxies and the Universe	ASTRO 120
2018	Semester-long teaching training, Teaching in American Classroom	ELP 515

ADVISING

2023	Ivaris Martinez	Hoffleit Fellow, University of Puerto Rico
2021-2023	Daniel Chang	Undergraduate student, Yale "Constraints to Efficiently Find Interstellar Object Generated Craters on the Moon" 2023, Research Notes of the American Astronomical Society, 7, 228.
2021-2023	Sally Jiang	Yale STARS Program Fellow, Yale Results in second/third author paper in prep.
2022	Jessica Sanchez	Yale STARS Summer Researcher, Yale
2020-2022	Abby Mintz	Undergraduate student, Yale

INTERVIEWS AND THE MEDIA

2019	The New York Times, "The Interstellar Comet Has Arrived in Time for the Holidays"
2019	Yale Daily News: "New image offers close-up view of interstellar comet"
2019	W Radio Colombia: "Cometa Borisov, el objeto de otro sistema solar que pasará por la tierra"

TALKS

2023	Space and Astro plasma physics Seminar speaker, Los Alamos National Lab **seminar speaker**
2023	Radio Millimeter Submillimeter (RMS) Science Seminar speaker, Harvard CfA **seminar speaker**
2023	ISM/ Stars Seminar, University of Texas, Austin **seminar speaker**
2023	North East Star & Planet Formation conference, CfA, Harvard speaker
2023	NAOJ **seminar speaker**
2023	NAOJ Star Formation workshop, Tokyo, Japan speaker
2023	Nagoya University, Japan **seminar speaker**

2023	241st American Astronomical Society Conference, Seattle, speaker
2022	National Tsing Hua University, Taiwan **seminar speaker**
2022	Academia Sinica Institute of Astronomy and Astrophysics Taiwan lunch talk
2022	Max Planck Institute for extraterrestrial physics (MPE) **seminar speaker**
2022	North East Star Formation Conference Wesleyan university speaker
2022	From Stars to Galaxies II, Chalmers University of Technology, Sweden **poster award winner talk**
2022	Seeing the Future: Of the universe, data, learning & digital scholarship speaker
2022	Submillimeter Array Science Seminar, Harvard CfA, **invited seminar speaker**
2021	Star Formation: From Clouds to Discs Conference, Dublin Ireland
2021	National University Ireland Galway (NUIG), Ireland **seminar speaker**
2021	Arizona University, USA Origin planets and stars **seminar speaker**
2021	HOPS research group virtual lunch talk
2021	European Astronomical Society Annual meeting
2021	National Radio Astronomy Observatory lunch **seminar talk**
2021	National Taiwan Normal University, Taiwan **seminar speaker**
2021	National Tsing Hua University, Taiwan **seminar speaker**
2021	East Asian ALMA Science Workshop
2021	Max-Planck-Institute for Extraterrestrial Physics Paola Caselli's group lunch talk
2021	Academia Sinica Institute of Astronomy and Astrophysics Taiwan lunch talk
2021	American Astronomical Society Annual meeting
2020	Academia Sinica Institute of Astronomy and Astrophysics Taiwan lunch talk
2020	New England Star Formation Conference University of Connecticut
2019	Midwest Magnetic Fields Conference
2019	National Radio Astronomy Observatory TUNA lunch **seminar talk**
2019	New England Star Formation Meeting UMass Amherst, USA

POSTERS

2023	MIT Haystack Observatory, MIT, USA
2023	Emerging Researchers in Exoplanet Science Symposium, Yale, USA
2023	Protostars and Planets Conference VII, Kyoto, Japan
2022	From Stars to Galaxies II, Chalmers University of Technology, Sweden
2018	Mid-west Magnetic Fields Conference in UW-Madison, USA
2017	National Tsing Hua University Physics/Astronomy Research Competition
2017	Annual Meeting of the Astronomical Society of the Republic of China (Taiwan)

ACCEPTED OBSERVATION PROPOSALS

Radio Proposals:

1. 2023 ALMA Cycle 10 One-Hundred Protostar Project (2023.1.00254.S)
    - **Co-I** (39.8 hours 12-m array awarded)
    - Resubmit of ALMA Cycle 9
2. 2022 ALMA Cycle 9 One-Hundred Protostar Project (2022.1.00342.S)
    - **Co-I** (39.8 hours 12-m array, 212 hours on 7-m array, 536.9 hours on Total Power awarded)
    - ALMA shutdown due to cyber-attack.

- I was the PI of this proposal in ALMA Cycle 8. I transferred the PI position to my PhD advisor in Cycle 9.

3. 2019 ALMA DDT proposal on the first interstellar comet (2019.A.00005.S)
    - **PI** (13.8 hours awarded)
    - ALMA shutdown due to Covid-19
4. 2019 Green Bank Telescope DDT proposal on the first interstellar comet (GBT/19B-311)
    - **PI** (33.5 hours awarded)
    - No comet outburst within the observing window
5. 2018 ALMA Cycle 6 VLA1623A Class 0 disk (2018.1.00388.S)
    - **PI** (16.7 hours on 12-m array, 2 hours on 7-m array awarded)
6. 2016 Submillimeter Array (SMA) filler proposal on Yellow Hypergiant HR8752 (2016B-A020)
    - **PI** (6 hours awarded)

Optical/ Near Infrared Proposals:

7. 2023 Palomar 200-inch telescope 2023A Magnetic field in Perseus Molecular Cloud
    - **Co-PI** (4 nights awarded)
8. 2022 Palomar 200-inch telescope 2022A Magnetic field in Orion A Molecular Cloud
    - **Co-PI** (8 nights awarded)
9. 2021 Palomar 200-inch telescope 2021A Protostellar Mass Function: A pilot study
    - **PI** (3 nights awarded)
10. 2021 Palomar 200-inch telescope 2021A Magnetic field in Orion A Molecular Cloud
    - **Co-PI** (3 nights awarded)
11. 2020 Palomar 200-inch telescope 2020A Magnetic field in Orion A Molecular Cloud
    - **Co-PI** (3 nights awarded)
12. 2019 Keck 2019B Detecting CO ice in prestellar core L1544(2019B_Y028)
    - **Co-PI** (1 night awarded)

Grant received (Amount)

800 USD	2022 Yale Graduate School Assembly Conference Travel Grant
10,000 USD	2022 National Radio Astronomy Observatory Conference/Reference Grant (ALMA Ambassador Program)
32,000 USD	2020-2022 Taiwan Government Scholarship for Study Abroad program
800 USD	2021 Yale Graduate School Assembly Conference Travel Grant

SCIENTIFIC COMMUNITY WORK

1. Main organizer of the 2023 Emerging Researchers in Exoplanet Science Symposium (Conference for young researchers)
    a. Secured over 140,000 USD from Heising-Simons Foundation
    b. Free for all attendees, covering hotels, meals, and travel.
    c. Promotes Diversity, Inclusion, Equality in the field as most attendees (undergraduates or 1st year graduate students) do not have travel funds on their own.
2. 2022 National Radio Astronomy Observatory (NRAO) ALMA Ambassador
3. Panel reviewer of the NRAO Student Observing Support Grant proposals
4. Main organizer of the Cycle 9 ALMA proposal preparation workshop for USA Northeast coastal region
5. Mentor of AstroSibs, Undergraduate Mentorship Program for more than 4 years
6. Scientific Referee of the Yale Undergraduate Research Journal (YURA)
7. Member of the Yale Astronomy and Climate Diversity Committee (ACDC)

8. Mentor 5 undergraduate students on their research projects (summer projects or senior thesis).
9. Presenter for the planetarium show and telescope viewing at the Leitner Family Observatory and Planetarium