Chih-Chun "Dino" Hsu

Center for Astrophysics and Space Sciences, University of California San Diego
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EDUCATION

University of California, San Diego, La Jolla, CA, USA
Doctor of Philosophy (Ph.D.) in Physics — Expected June 2022
Advisor: Adam Burgasser

National Tsing Hua University, Hsinchu, Taiwan
Bachelor of Science (B.S) in Physics — June 2014

RESEARCH INTERESTS

lowest-mass stars; brown dwarfs; exoplanets; medium-/high-resolution spectroscopy; very low-mass binaries; stellar populations; stellar kinematics; stellar rotation

RESEARCH EXPERIENCE

Graduate Research Student — 2016-present
Center for Astrophysics and Space Sciences, UC San Diego, La Jolla, CA
Advisor: Adam Burgasser

Research Assistant — 2015-2016
Institute of Astronomy, National Tsing Hua University, Hsinchu, Taiwan
Supervisor: Huei-Ru Vivien Chen

Undergraduate Research Student — 2013-2014
Physics Department, National Tsing Hua University, Hsinchu, Taiwan
Advisor: Kingman Cheung

ACADEMIC HONORS & AWARDS

Friends of the International Center fellowship ($2,000) — 2020
UC San Diego, La Jolla, CA
Awarded for promoting international friendship, understanding, and cooperation.

Carol and George Lattimer Award for Graduate Excellence ($2,000) 2019-2020
UC San Diego, La Jolla, CA
Awarded to graduate students in the Divisions of Physical Sciences who seek interdisciplinary approaches to problem-solving and have a strong commitment to education, mentorship, and service.

Physics Chair's Challenge Award *2 ($500) — 2017-2018
UC San Diego, La Jolla, CA
Awarded for supporting educational excellence and training for physics students.

Physics Excellence Award ($9,200) — 2016
UC San Diego, La Jolla, CA
Awarded to highly qualified students admitted to the Physics PhD program.

College of Science Elite Student Award *3 — 2012-2014
National Tsing Hua University, Hsinchu, Taiwan
Awarded to the top student of class based on academic achievements.

Academic Achievement Award *5 2011-2014
National Tsing Hua University, Hsinchu, Taiwan
Awarded to top 5 % of class.

College of Science Scholarship 2013
National Tsing Hua University, Hsinchu, Taiwan
Awarded to one student in College of Science based on academic achievements.

PUBLICATIONS

Hsu, C., Burgasser, A. J., Theissen, C. A., Birky, J. L., Gelino, C. R., Blake, C. H., "The Brown Dwarf Kinematics Project (BDKP). V. Radial and Rotational Velocities of T Dwarfs From Keck/NIRSPEC High-Resolution Spectroscopy", in prep.

Sahlmann, Johannes; Dupuy, Trent J.; Burgasser, Adam J.; Filippazzo, Joseph C.; Martín, Eduardo L.; Bardalez Gagliuffi, Daniella C.; **Hsu, Chih-Chun**; Lazorenko, Petro F.; Liu, Michael C., "Individual Dynamical Masses of DENIS J063001.4−184014AB Reveal A Likely Young Brown Dwarf Triple", arXiv:2011.08266, November 2020

Meisner, Aaron M.; Faherty, Jacqueline K.; Kirkpatrick, J. Davy; Schneider, Adam C.; Caselden, Dan; Gagné, Jonathan; Kuchner, Marc J.; Burgasser, Adam J.; Casewell, Sarah L.; Debes, John H.; Artigau, Étienne; Bardalez Gagliuffi, Daniella C.; Logsdon, Sarah E.; Kiman, Rocio; Allers, Katelyn; **Hsu, Chih-Chun**; Wisniewski, John P.; Allen, Michaela B.; Beaulieu, Paul; Colin, Guillaume Durantini Luca, Hugo A.; Goodman, Sam; Gramaize, Léopold; Hamlet, Leslie K.; Hinckley, Ken; Kiwy, Frank; Martin, David W.; Pendrill, William; Rothermich, Austin; Sainio, Arttu; Schümann, Jörg; Andersen, Nikolaj Stevnbak; Tanner, Christopher; Thakur, Vinod; Thévenot, Melina; Walla, Jim; Wędracki, Zbigniew; Aganze, Christian; Gerasimov, Roman; Theissen, Christopher; The Backyard Worlds: Planet 9 Collaboration, "Spitzer Follow-up of Extremely Cold Brown Dwarfs Discovered by the Backyard Worlds: Planet 9 Citizen Science Project", ApJ, 889, 123, August 2020

Schneider, Adam C.; Burgasser, Adam J.; Gerasimov, Roman; Marocco, Federico; Gagné, Jonathan; Goodman, Sam; Beaulieu, Paul; Pendrill, William; Rothermich, Austin; Sainio, Arttu; Kuchner, Marc J.; Caselden, Dan; Meisner, Aaron M.; Faherty, Jacqueline K.; Mamajek, Eric E.; **Hsu, Chih-Chun**; Greco, Jennifer J.; Cushing, Michael C.; Kirkpatrick, J. Davy; Bardalez-Gagliuffi, Daniella Logsdon, Sarah E.; Allers, Katelyn; Debes, John H.; Backyard Worlds: Planet 9 Collaboration, "WISEA J041451.67-585456.7 and WISEA J181006.18-101000.5: The First Extreme T-type Subdwarfs?", ApJ, 989, 77, July 2020

Paudel, R. R., Gizis, J. E., Burgasser, A. J., **Hsu, C.**, "2MASS J10274572+0629104: the very short period young M6 dwarf binary system identified in K2 data", MNRAS, 486, 4144, July 2019

TALKS

"Ultracool Dwarf Kinematics and Ages Revealed by High-Resolution Spectroscopy"
November 13, 2020
CASS Journal Club, UC San Diego, La Jolla, CA

"Precise Radial and Rotational Velocities of Ultracool Dwarfs Using a Forward-Modeling Method with High-Resolution Spectroscopy" February 4, 2020
High-Resolution Infrared Spectroscopy for Exoplanet Characterization Hackathon, Caltech, Pasadena, CA

"Radial and Rotational Velocities of Ultracool Dwarfs From High-Resolution Spec-

troscopy" March 5, 2019
AMNH Astrophysics seminar, American Museum of Natural History, New York, NY

"Radial and Rotational Velocities of Ultracool Dwarfs From High-Resolution Spectroscopy" February 15, 2019
CASS Journal Club, UC San Diego, La Jolla, CA

POSTERS

"Precise Radial and Rotational Velocities for T Dwarfs Using NIRSPEC High-Resolution Spectrometer" September 2019
Keck Science Meeting 2019, UCLA, Los Angeles, CA

"Precise Radial and Rotational Velocities of Ultracool Dwarfs with APOGEE High-Resolution Spectra" June 2019
SDSS-IV/V Collaboration Meeting 2019, Ensenada, Mexico

"Radial and Rotational Velocities for 300+ Ultracool Dwarfs from NIRSPEC High-Resolution Spectroscopy" January 2019
233rd AAS Meeting, Seattle, WA

"Toward Measurements of Radial and Rotational Velocities of 300+ Ultracool Dwarfs from NIRSPEC High-Resolution Spectroscopy" September 2018
Keck Science Meeting 2018, Caltech, Pasadena, CA

"Precise Radial Velocities to Detect Exoplanets around Ultracool Dwarfs Using the NIRSPEC High-Resolution Spectrograph" September 2018
ExSoCal 2018, Caltech, Pasadena, CA

"Refined Measurements of Radial and Rotational Velocities of 300+ Ultracool Dwarfs from NIRSPEC High-Resolution Spectroscopy" July 2018
Cool Stars 20, Boston University, Cambridge, MA

WORKSHOPS

High-Resolution Infrared Spectroscopy for Exoplanet Characterization Hackathon
Caltech, Pasadena, CA February 4-6 2020

Telluric Line Hack Week Workshop February 25-28 2019
Flatiron Institute, New York, NY

2017 Kraft Observational Astronomy Workshop October 12-16 2017
Lick Observatory, Mount Hamilton, CA

SciCoder Workshop July 31-August 4 2017
Vanderbilt University, Nashville, TN

TELESCOPE TIME AWARDED

W. M. Keck Telescopes, Keck II 10-meter
Co-I: **2019B–2020B**: "Completing the Kinematic Census of Local L and T Dwarfs"
- 5.75 nights awarded (NIRSPEC)

Co-I: **2018B–2020B**: "NIRES Follow-up of Young T Dwarfs from Backyard Worlds"
- 7 nights awarded (NIRES)

NASA InfraRed Telescope Facility (IRTF)
Co-I: **2018A–2019B**: "Training the Cannon: Calibrating APOGEE Observations of

Ultracool Dwarfs"
- 6 nights awarded (iSHELL)

ADDITIONAL OBSERVING EXPERIENCE

Keck II 10-meter/NIRSPEC 7 nights 2017-2018

Keck I 10-meter/HIRES 0.5 nights 2018

Shane Telescope 3-meter
- Kast Double Spectrograph: 13 nights 2018-2020
- ShaneAO/ShARCS: 1 night 2019

TEACHING

Teaching assistant for PHYS 2BL Fall 2016, Winter 2017
UC San Diego, La Jolla, CA
- lower-division electricity & magnetism lab for engineering/physics major

Teaching assistant for PHYS 2DL Spring & Fall 2017, 2019, Spring 2020
UC San Diego, La Jolla, CA
- lower-division modern physics lab for engineering and physical science majors

Teaching assistant for PHYS 160 Winter 2018, Fall 2018
UC San Diego, La Jolla, CA
- upper-division introductory stellar astrophysics lecture for physics major

Teaching assistant for PHYS 1A Spring 2018
UC San Diego, La Jolla, CA
- lower-division mechanics lab for life-science majors

California Professoriate for Access to Physics Careers (CPAPC)
Southern California Physics GRE Bootcamp August 2017
- UC San Diego, La Jolla, CA

Python Workshop for Physics Undergraduate Students November 2019
- UC San Diego, La Jolla, CA

PUBLIC OUTREACH

2019 Institute for Scientist & Engineer Educations (ISEE) Professional Development Program (PDP) March-September 2019
UC Santa Cruz/UC Los Angeless, CA
- Professional development team focused on effective and inclusive teaching, including mentoring, and also includes training in professional skills such as communication, teamwork, collaboration, and leadership.

Institute of the Americas (IOA) Science Innovation Camp July 20 2017
UC San Diego, La Jolla, CA
- Physics outreach for Latin American high school students (14–18 year old)

The Barrio Logan Science & Art Expo March 16 2019
Mercado del Barrio, San Diego, CA
- Physics outreach for Mexican families from around southern San Diego

PROFESSIONAL AFFILIATIONS

American Astronomical Society (AAS) 2018-Present

SKILLS Python, Github; Languages: Mandarin (native), English (fluent)

REFERENCES

Dr. Adam Burgasser
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University of California San Diego
9500 Gilman Drive 0424, La Jolla, California 92093-0424, USA
aburgasser at ucsd.edu

Dr. Quinn Konopacky
Assistant Professor of Physics
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Dr. Christopher Theissen
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