

# Chih-Chun “Dino” Hsu

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|-------------------------------------|---|--------------------|
| <b>EDUCATION</b>                    | <b>University of California, San Diego</b> , La Jolla, CA, USA<br>Doctor of Philosophy (Ph.D.) in Physics<br>Advisor: Adam Burgasser  | Expected June 2022 |
|                                     | <b>National Tsing Hua University</b> , Hsinchu, Taiwan<br>Bachelor of Science (B.S) in Physics  | June 2014          |
| <b>RESEARCH INTERESTS</b>           | lowest-mass stars; brown dwarfs; exoplanets; medium-/high-resolution spectroscopy; very low-mass binaries; stellar populations; stellar kinematics; stellar rotation  |                    |
| <b>RESEARCH EXPERIENCE</b>          | <b>Graduate Research Student</b><br>Center for Astrophysics and Space Sciences, UC San Diego, La Jolla, CA<br>Advisor: Adam Burgasser   | 2016-present       |
|                                     | <b>Research Assistant</b><br>Institute of Astronomy, National Tsing Hua University, Hsinchu, Taiwan<br>Supervisor: Huei-Ru Vivien Chen  | 2015-2016          |
|                                     | <b>Undergraduate Research Student</b><br>Physics Department, National Tsing Hua University, Hsinchu, Taiwan<br>Advisor: Kingman Cheung  | 2013-2014          |
|                                     | <b>Friends of the International Center fellowship</b> (\$2,000)<br>UC San Diego, La Jolla, CA<br>Awarded for promoting international friendship, understanding, and cooperation.  | 2020               |
|                                     | <b>Carol and George Lattimer Award for Graduate Excellence</b> (\$4,000)<br>UC San Diego, La Jolla, CA<br>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. | 2019-2020          |
| <b>ACADEMIC HONORS &amp; AWARDS</b> | <b>Physics Chair’s Challenge Award</b> *2 (\$500)<br>UC San Diego, La Jolla, CA<br>Awarded for supporting educational excellence and training for physics students.   | 2017-2018          |
|                                     | <b>Physics Excellence Award</b> (\$9,200)<br>UC San Diego, La Jolla, CA<br>Awarded to highly qualified students admitted to the Physics PhD program.  | 2016               |
|                                     | <b>College of Science Elite Student Award</b> *3<br>National Tsing Hua University, Hsinchu, Taiwan<br>Awarded to the top student of class based on academic achievements.   | 2012-2014          |
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**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.

J. Davy Kirkpatrick, Christopher R. Gelino, Jacqueline K. Faherty, Aaron M. Meisner, Dan Caselden, Adam C. Schneider, Federico Marocco, Alfred J. Cayago, R. L. Smart, Peter R. Eisenhardt, Marc J. Kuchner, Edward L. Wright, Michael C. Cushing, Katelyn N. Allers, Daniella C. Bardalez Gagliuffi, Adam J. Burgasser, Jonathan Gagne, Sarah E. Logsdon, Emily C. Martin, James G. Ingalls, Patrick J. Lowrance, Ellianna S. Abrahams, Christian Aganze, Roman Gerasimov, Eileen C. Gonzales, **Chih-Chun Hsu**, Nikita Kamraj, Rocio Kiman, Jon Rees, Christopher Theissen, Kareem Ammar, Nikolaj Stevnbak Andersen, Paul Beaulieu, Guillaume Colin, Charles A. Elachi, Samuel J. Goodman, Leopold Gramaize, Leslie K. Hamlet, Justin Hong, Alexander Jonkeren, Mohammed Khalil, David W. Martin, William Pendrill, Benjamin Pumphrey, Austin Rothermich, Arttu Sainio, Andres Stenner, Christopher Tanner, Melina Thevenot, Nikita V. Voloshin, Jim Walla, Zbigniew Wędracki, “The Field Substellar Mass Function Based on the Full-sky 20-pc Census of 525 L, T, and Y Dwarfs”, arXiv:2011.11616, November 2020

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

“*Radial Velocities and Kinematic Ages of Nearby T Dwarfs from Keck/NIRSPEC High-Resolution Spectroscopy*” January 15, 2021  
AAS 237 Meeting, Virtual

“*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 Spectroscopy*” 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  
AAS 233 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

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|  | <i>Telluric Line Hack Week Workshop</i><br>Flatiron Institute, New York, NY  | February 25-28 2019  |
|  | <i>2017 Kraft Observational Astronomy Workshop</i><br>Lick Observatory, Mount Hamilton, CA   | October 12-16 2017   |
|  | <i>SciCoder Workshop</i><br>Vanderbilt University, Nashville, TN   | July 31-August 4 2017  |
| <b>TELESCOPE<br/>TIME<br/>AWARDED</b>          | <i>W. M. Keck Telescopes, Keck II 10-meter</i><br>Co-I: <b>2019B–2020B</b> : “Completing the Kinematic Census of Local L and T Dwarfs” <ul style="list-style-type: none"> <li>• 5.75 nights awarded (NIRSPEC)</li> </ul><br>Co-I: <b>2018B–2021A</b> : “NIREs Follow-up of Young T Dwarfs from Backyard Worlds” <ul style="list-style-type: none"> <li>• 8 nights awarded (NIREs)</li> </ul><br><i>NASA InfraRed Telescope Facility (IRTF)</i><br>Co-I: <b>2018A–2019B</b> : “Training the Cannon: Calibrating APOGEE Observations of Ultracool Dwarfs” <ul style="list-style-type: none"> <li>• 6 nights awarded (iSHELL)</li> </ul>  |  |
| <b>ADDITIONAL<br/>OBSERVING<br/>EXPERIENCE</b> | <i>Keck II 10-meter/NIRSPEC 7 nights</i><br><br><i>Keck I 10-meter/HIRES 0.5 nights</i><br><br><i>Shane Telescope 3-meter</i> <ul style="list-style-type: none"> <li>• Kast Double Spectrograph: 17 nights</li> <li>• ShaneAO/ShARCS: 1 night</li> </ul>   | 2017-2018<br><br>2018<br><br>2018-2020<br>2019   |
| <b>TEACHING</b>                                | <i>Teaching assistant for PHYS 5</i><br>UC San Diego, La Jolla, CA <ul style="list-style-type: none"> <li>• lower-division introductory stellar astrophysics lecture for non-physics major</li> </ul><br><i>Teaching assistant for PHYS 2DL</i><br>UC San Diego, La Jolla, CA <ul style="list-style-type: none"> <li>• lower-division modern physics lab for engineering and physical science majors</li> </ul><br><i>Teaching assistant for PHYS 1A</i><br>UC San Diego, La Jolla, CA <ul style="list-style-type: none"> <li>• lower-division mechanics lab for life-science majors</li> </ul><br><i>Teaching assistant for PHYS 160</i><br>UC San Diego, La Jolla, CA <ul style="list-style-type: none"> <li>• upper-division introductory stellar astrophysics lecture for physics major</li> </ul><br><i>Teaching assistant for PHYS 2BL</i><br>UC San Diego, La Jolla, CA <ul style="list-style-type: none"> <li>• lower-division electricity &amp; magnetism lab for engineering/physics major</li> </ul><br><i>California Professoriate for Access to Physics Careers (CPAPC)</i><br><i>Southern California Physics GRE Bootcamp</i> <ul style="list-style-type: none"> <li>• UC San Diego, La Jolla, CA</li> </ul> | Fall 2020<br><br>Spring & Fall 2017, 2019, Spring 2020<br><br>Spring 2018<br><br>Winter 2018, Fall 2018<br><br>Fall 2016, Winter 2017<br><br>August 2017 |

**PUBLIC  
OUTREACH**

*Python Workshop for Physics Undergraduate Students*

November 2019, 2020

- UC San Diego, La Jolla, CA

**2019 Institute for Scientist & Engineer Educations (ISEE)**

**Professional Development Program (PDP)**

March-September 2019

UC Santa Cruz/UC Los Angeles, 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**

Professor of Physics  
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  
University of California San Diego  
9500 Gilman Drive 0424, La Jolla, California 92093-0424, USA  
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### **Dr. Christopher Theissen**

NASA Sagan Postdoctoral Fellow  
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