

# KENNETH W. LIN

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## EDUCATION

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**M.A., Ph.D., Astrophysics** Expected 2025  
UNIVERSITY OF CALIFORNIA AT BERKELEY

**B.S. Physics, B.S. Astronomy**, *magna cum laude*, with minor in Mathematics May 2020  
UNIVERSITY OF MASSACHUSETTS AMHERST  
*Commonwealth Honors College Scholar with Greatest Distinction & Departmental Honors*  
Thesis: "Next Generation Imaging of Dusty Galaxies with TolTEC on the LMT"

## RESEARCH EXPERIENCE

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UNIVERSITY OF MASSACHUSETTS AMHERST, AMHERST, MA 1/2017 – 7/2020  
Undergraduate Research Assistant, Department of Astronomy  
Advisors: Alexandra Pope & Grant Wilson

- Developed simulations and diagnostics for upcoming TolTEC polarimeter on the Large Millimeter Telescope to identify and handle anticipated confusion and multiplicity of galaxy clusters in the data collection pipeline for planned Large Scale Structure Survey. This work culminated in my undergraduate senior honors thesis.
- Awarded \$1,750 as an Honors College Research Assistant Fellowship in 2017-18 for work in this group.

HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS, CAMBRIDGE, MA 6/2019 – 8/2019  
National Science Foundation REU Fellow, High-Energy Astrophysics Division  
Advisors: Dong-Woo Kim & Nazma Islam (NASA GSFC)

- Investigated origin of multiphase gas in early-type galaxies by analyzing asymmetries in extended hot gaseous halos to reveal the roles of mechanisms such as AGN and stellar feedback on their formation.
- Added *XMM-Newton* archival observations to build 2D maps and 3D radial profiles of temperature, pressure, density, mass, and iron abundance in halos to develop an X-ray galaxy atlas that complements *Chandra* observations. Computationally-intensive tasks made use of Smithsonian's *Hydra* supercluster.

KYOTO UNIVERSITY, JAPAN 6/2018 – 8/2018  
Nakatani RIES U.S. Research Fellow, Department of Physics, Solid State Spectroscopy Group  
Advisors: Takashi Arikawa, Koichiro Tanaka, Junichiro Kono (Rice Univ.)

- Selected as one of twelve Nakatani Foundation U.S. Fellows nationally to conduct research in Japan.
- Fabricated and characterized free carrier dynamics of MoS<sub>2</sub> and WSe<sub>2</sub> transition metal dichalcogenides on substrate LiNbO<sub>3</sub> using Raman spectroscopy, atomic force microscopy, and near-field optical-pump terahertz-probe spectroscopy.

## TEACHING EXPERIENCE

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Head Graduate Student Instructor, UC Berkeley Astronomy 160 (Stellar Physics) Fall 2020  
Teaching Assistant, UMass Amherst Astronomy 105 (Weather & Our Atmosphere) Spring 2020  
Peer Mentor, UMass Amherst Department of Physics Fall 2019  
Teaching Assistant, UMass Amherst Astronomy 105 (Weather & Our Atmosphere) Spring 2019  
Teaching Assistant, UMass Amherst Physics 115 (Physics of Music) Fall 2018  
Teaching Assistant, UMass Amherst Physics 181 (Mechanics) Fall 2017

## OUTREACH & ADVOCACY

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UMASS SCIENCE POLICY &amp; ADVOCACY INITIATIVE (SciPOL)

10/2019 – 5/2020

Co-Founder and President

- Founded to promote undergraduate exposure to the intersection of science and policy through writing policy briefs, connecting students with government officials, and hosting workshops discussing the most pressing issues in science such as artificial intelligence and intellectual property.
- Developed organizational constitution, strategic plan, and financial requirements.
- Granted Registered Student Organization status (given to only 5% of all student organizations).
- Led entry into collaboration with the inter-institutional Massachusetts Science Policy Network (MASPN).

AMERICAN ASTRONOMICAL SOCIETY

11/2019 – present

AAS Astronomy Ambassador

- Selected as an AAS Ambassador for the 2020 cohort to participate in training workshops that promote effective public outreach and communication techniques.

## SELECTED AWARDS & HONORS

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Elected to Phi Beta Kappa	2020
Honors Dean's Award for Thesis Excellence, Commonwealth Honors College	2020
DAWN-IRES NSF REU Fellowship in Copenhagen ( <i>postponed due to COVID-19</i> )	2020
Rising Researcher Award, University of Massachusetts Amherst	2019
Barry M. Goldwater Scholarship	2019
William F. Field Alumni Scholar, UMass Amherst Alumni Association	2019
SPS Top Presenter Award March Meeting, American Physical Society	2019
Rick A. Pitino Presidential Medal Scholarship, University of Massachusetts	2018
Hokkaido University Fund Scholarship Award, UMass College of Natural Sciences	2017, 2018
NASA Space Grant Summer Fellowship, Massachusetts Space Grant Consortium	2017
Dean's Award Four-Year Scholarship, University of Massachusetts	2016-2020
Stanley Z. Koplik Certificate of Mastery Full Tuition Scholarship	2016-2020

## TALKS & CONFERENCES

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**K. Lin**, D.-W. Kim, N. Islam, A. Mossman. "The Extended, Asymmetric Hot Gaseous Halos of Early-Type Galaxies." *235th American Astronomical Society Meeting*, Honolulu, HI, January 2020. Poster.

**K. Lin**, D.-W. Kim, N. Islam, A. Mossman. "The X-ray Picture of the Extended Hot Gaseous Halos in Early-Type Galaxies." *Gulf Coast Undergraduate Research Symposium*, Houston, TX, November 2019. Invited oral session.

**K. Lin**, S. Kusaba, T. Arikawa, F. Blanchard, K. Tanaka. "Ultrafast Carrier Dynamics of Exfoliated Transition Metal Dichalcogenides with Optical-Pump Terahertz-Probe Microscopy." *American Physical Society March Meeting*, Boston, MA, March 2019. Oral. *Top Presenter Award*.

**K. Lin**, S. Kusaba, T. Arikawa, F. Blanchard, K. Tanaka. "Ultrafast Carrier Dynamics of Exfoliated Transition Metal Dichalcogenides with Optical-Pump Terahertz-Probe Microscopy." *4th Annual Smalley-Curl Institute Summer Research Colloquium*, Houston, TX, August 2018. Poster. *Best Presentation Award*.

**K. Lin**, A. Pope, A. Kirkpatrick. "Hunting for AGN in JWST/MIRI Imaging." *231st American Astronomical Society Meeting*, Washington, D.C., January 2018. Poster.

## SKILLS

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<b>Technical</b>	Python, MATLAB, Java, JavaScript, HTML/CSS, L <sup>A</sup> T <sub>E</sub> X
<b>Software</b>	ds9, ImageJ, Igor Pro, PASCO Capstone, Git
<b>Languages</b>	Natively fluent in English, Taiwanese, Hakka; Proficient in Japanese, Mandarin, French