JOSEPH M. AKANA MURPHY

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SCIENTIFIC INTERESTS

Exoplanet characterization and formation, applications of statistical modeling and machine learning

EDUCATION

University of California, Santa Cruz
Ph.D. in Astronomy and Astrophysics 2019 - present
Advisor: Professor Natalie Batalha

Stanford University
Master of Science in Applied and Engineering Physics 2018 - 2019
Bachelor of Science in Physics 2014 - 2018
Minor in Mathematics
Advisors: Professor Bruce Macintosh, Dr. Ian Czekala
Thesis: *Inferring the Veiling Spectrum of the Pre-Main Sequence Star LkCa 15 with Gaussian Processes*

SCIENTIFIC RESEARCH

Prioritizing TESS Targets for Atmospheric Characterization 2019 - present
We develop a prioritization algorithm to systematically search for the TESS targets that are best-suited for transmission spectroscopy.

The TESS-Keck Survey 2019 - present
Provide observing and analysis support for the TESS-Keck Survey, a multi-institution collaboration with the goal of measuring the orbits and masses of ∼100 TESS planets.

Unveiling the Spectra of Young Stars with Gaussian Processes 2017 - 2019
Using Gaussian processes to model the time-series observations of a young star, LkCa 15, we observe small-scale amplitude variations in atomic features throughout the accretion spectrum.

HONORS AND AWARDS

National Science Foundation Graduate Research Fellowship 2019 - present
LSST Corporation Data Science Fellowship 2019 - present
Conference Travel Grant,
Office of Undergraduate Advising and Research, Stanford University 2017
Thomas J. Watson Memorial Scholarship, IBM 2014 - 2018

RESEARCH EXPERIENCE

Graduate Student
Department of Astronomy and Astrophysics, University of California, Santa Cruz 2019 - present

Research Assistant
Kavli Institute for Particle Astrophysics and Cosmology, Stanford University 2017 - 2019

Research and Development Intern
Pathfinder Systems, Inc., Denver, CO Summer 2016

PUBLICATIONS

NASA ADS search results

Many-author Publications

Cloutier, R. *et al.*, **including Murphy, J. M. A.** "TOI-1235 b: a keystone super-Earth for testing radius valley emergence models around early M dwarfs" submitted (2020).

Dalba, P. *et al.*, **including Murphy, J. M. A.** "The TESS-Keck Survey. I. A Warm Sub-Saturn-mass Planet and a Caution about Stray Light in TESS Cameras" submitted (2020).

Fei, D. *et al.*, **including Murphy, J. M. A.** "The TESS-Keck Survey III: An aligned orbit for TOI-1726 c" in prep (2020).

TEACHING EXPERIENCE

Teaching Assistant

Astronomy 119: *Introduction to Scientific Computing*, UCSC	Spring 2020
Physics 43: *Electricity and Magnetism*, Stanford University	Spring 2019
Physics 41: *Mechanics*, Stanford University	Winter 2019
Physics 41A: *Mechanics*, Stanford University	Winter 2018

Course Instructor

Physics 91SI: *Practical Computing for Scientists*, Stanford University	Spring 2017

OBSERVING EXPERIENCE

10-meter Keck I telescope (HIRES) - 19 half nights

ACADEMIC PRESENTATIONS

Posters

Inferring the spectrum of accretion onto LkCa 15 with Gaussian Processes, 233rd American Astronomical Society Meeting	January 2019
Disentangling spectra of young stars, 231st American Astronomical Society Meeting	January 2018

VOLUNTEER AND OUTREACH EXPERIENCE

Volunteer Instructor

Introduction to Astronomy Research	Summer 2020

Invited Public Talks

Piecing Together the Universe with Generative Models, Astronomy on Tap - Santa Cruz	March 2020