

# Caleb R. Choban

COMPUTATIONAL ASTROPHYSICISTS · INTERSTELLAR DUST ENTHUSIAST

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## Education

### University of California San Diego

PH.D. IN PHYSICS

Advisor: Dr. Dušan Kereš

San Diego, CA

Sept. 2016 - June 2023 (expected)

### University of California San Diego

B.S. IN PHYSICS W/ SPEC. IN ASTROPHYSICS (CUM LAUDE)

Advisor: Dr. Adam Burgasser

San Diego, CA

Sept. 2011 - Dec. 2015

## Research Experience

### Graduate Student Researcher

UCSD DEPARTMENT OF PHYSICS

- Modified C package GIZMO to model dust evolution in cosmological simulations
- Investigated long term dust evolution and its effects on galaxy evolution using cosmological zoom-in simulations

Advisor: Dušan Kereš

2016 - PRESENT

### Undergraduate Student Researcher

UCSD DEPARTMENT OF PHYSICS

- Contributed to the development of SPLAT Python package, used to access and analyze an online repository of brown dwarf spectra
- Developed a machine-learning clustering algorithm to identify rare populations of stars and brown dwarfs

Advisor: Adam Burgasser

2014-2016

## Skills

**Programming** Python · C/C++ · Mathematica · LaTeX · Parallel programming with MPI and OpenMP

**Other** Big data analysis · Running simulations on several national supercomputers

## Publications

### FIRST AUTHOR

1. "THE GALACTIC DUST-UP: MODELLING DUST EVOLUTION IN FIRE"

CALEB R. CHOBAN, DUŠAN KEREŠ, PHILIP F. HOPKINS, KARIN M. SANDSTROM, CHRISTOPHER C. HAYWARD, CLAUDE-ANDRÉ FAUCHER-GIGUÈRE, SUBMITTED TO MNRAS

### CONTRIBUTOR

1. "CHARACTERIZATION OF THE VERY LOW MASS SECONDARY IN THE GJ 660.1AB SYSTEM"

C. AGANZE, A. J. BURGASSER, J. K. FAHERTY, C. CHOBAN, I. ESCALA, M. A. LOPEZ, Y. JIN, T. TAMIYA, M. TALLIS, W. ROCKWARD, 2016, AJ, 151, 6A

2. "THE FIRST BROWN DWARF IN THE 32 ORIONIS ASSOCIATION"

A. J. BURGASSER, M. A. LOPEZ, E. E. MAMAJEK, J. GAGNE, J. K. FAHERTY, M. TALLIS, C. CHOBAN, I. ESCALA, C. AGANZE, 2016, APJ, 820, 32B

## Honors, Awards, & Grants

UCSD Graduate Student Association Travel Grant

2019

NSF Graduate Research Fellowship, Honorable Mention

2018

UCSD Physical Sciences Dean's Undergraduate Award for Excellence

2015-2016

Provost Honours, UCSD

2013-2015

## Presentation/Poster

FIRE Collaboration Seminar

INVITED TALK

Virtual

2021

Osterbrock Sierra Conference

POSTER/TALK

Sequoia National Park

2021

## Dusting the Universe Conference

POSTER

Univ. of Arizona

2019

## Galaxy Formation and Evolution in Southern California

CONTRIBUTED TALK

California Institute of Technology

2016, 2018, 2019

## UCSD Undergraduate Research Conference

CONTRIBUTED TALK

UC San Diego

2015

## Summer Undergraduate Research Conference

CONTRIBUTED TALK

UC San Diego

2014

## Teaching Experience

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### LAB ASSISTANT

PHYS 105A/B: Mathematical and Computational Physics I/II

PHYS 164: Observational Astrophysics Research Lab

PHYS 124: Laboratory Projects w/ Arduinos

PHYS 120: Circuits and Electronics Lab

PHYS 2CL: Physics Lab E&M, Waves, & Optics

### LECTURE ASSISTANT

PHYS 163: Galaxies and Quasars

PHYS 162: Cosmology

PHYS 1B: Electricity and Magnetism

PHYS 13: Life in the Universe

PHYS 7: Galaxies and Cosmology

### WORKSHOP INSTRUCTOR

Coding Design

Time Management

## Outreach

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Transfer Student STEM Research Seminar

2021

Graduate/Undergraduate Peer-to-Peer Mentoring Program, Founder

2019-2022

UCSD Young Physicists Program

2018-2020

Physics Graduate Council, Representative

2018-2022

San Diego Festival for Science and Engineering

2015-2020

Southern California Physics Graduate Admissions Bootcamp, Presenter and Tutor

2016-2017

Institute of the Americas Science & Innovation Camp

2015-2017

Intertribal Youth: Indigenize Education

2015-2017

Society of Physics Students, Vice President

2014-2016