Caleb R. Choban

COMPUTATIONAL ASTROPHYSICIST · INTERSTELLAR DUST ENTHUSIAST

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Education

University of California San Diego — *San Diego, CA*
PH.D. IN PHYSICS — *Sept. 2016 - June 2023 (expected)*

University of California San Diego — *San Diego, CA*
B.S. IN PHYSICS W/ SPEC. IN ASTROPHYSICS (CUM LAUDE) — *Sept. 2011 - Dec. 2015*

Research Experience

Graduate Student Researcher — *Advisor: Dušan Kereš*
UCSD DEPARTMENT OF PHYSICS — *2016 - PRESENT*
- 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

Undergraduate Student Researcher — *Advisor: Adam Burgasser*
UCSD DEPARTMENT OF PHYSICS — *2014-2016*
- 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

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: MODELING DUST EVOLUTION IN FIRE"
   CALEB R. CHOBAN, DUŠAN KEREŠ, PHILIP F. HOPKINS, KARIN M. SANDSTROM, CHRISTOPHER C. HAYWARD, CLAUDE-ANDRÉ FAUCHER-GIGUÈRE, 2022, MNRAS, 514, 4506

IN PROGRESS

1. "MODELING DUST EVOLUTION OVER COSMIC TIME"
   CALEB R. CHOBAN, DUŠAN KEREŠ, ET AL., IN PREP

2. "FROM THE ASHES: MODELING GRAIN SIZE EVOLUTION AND PAHS IN FIRE"
   CALEB R. CHOBAN, DUŠAN KEREŠ, ET AL., IN PREP

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

Star Formation/ISM Rendezvous (SFIR) Seminar	*Princeton*
CONTRIBUTED TALK	*Forthcoming*
Galaxy Formation and Evolution in Southern California	*California Institute of Technology*
CONTRIBUTED TALK	*2016, 2018, 2019,2022*
FIRE Collaboration Seminar	*Virtual*
INVITED TALK	*2021*
Osterbrock Sierra Conference	*Sequoia National Park*
POSTER/TALK	*2021*
Dusting the Universe Conference	*Univ. of Arizona*
POSTER	*2019*
UCSD Undergraduate Research Conference	*UC San Diego*
CONTRIBUTED TALK	*2015*
Summer Undergraduate Research Conference	*UC San Diego*
CONTRIBUTED TALK	*2014*

Teaching Experience

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

Intermediate Introduction to Python

Outreach

Graduate/Undergraduate Peer-to-Peer Mentoring Program, Founder	*2019-2022*
Physics Graduate Council, Representative	*2018-2022*
San Diego Air & Space Museum Space Day	*2022*
Transfer Student STEM Research Seminar	*2021*
UCSD Young Physicists Program	*2018-2020*
San Diego Festival for Science and Engineering	*2015-2020*
Southern California Physics Graduate Admissions Bootcamp, Presentor 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*