Jared Siegel

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Education

Princeton University — 2027

PhD in Astrophysics

University of Chicago — 2022

BA in Physics
BS in Astrophysics

Research

5. Honors Thesis — Sept. 2021 to present

With: Leslie Rogers, University of Chicago

Focus: exploring the joint mass-radius-period distribution of exoplanets using hierarchical population mixture models

4. SURF student and research assistant — June 2021 to present

With: Andrew Howard, California Institute of Technology

Focus: developing and validating stellar activity mitigation methods for high precision radial velocity analysis

3. NSF REU student and research assistant — June 2020 to present

With: Vicky Kalogera, Northwestern University

Focus: investigating detection biases in the Milky Way low mass X-ray binary population

2. Research assistant — Nov. 2019 to Sept. 2021

With: Daniel Fabrycky, University of Chicago

Focus: exploring exoplanet resonant chains through N-body integrations and Bayesian inference techniques

1. Research assistant — Jan. 2019 to Sept. 2020

With: Vikram Dwarkadas, University of Chicago
Kari Frank, Northwestern University

Focus: investigating the progenitors of supernova remnants using XMM-Newton observations

Publications

Peer-reviewed

5. "Into the Depths: a new activity metric for high-precision radial velocity measurements based on line depth variations"

   Siegel, J., Rubenzahl, R., Halverson, S., & Howard, A. AJ, accepted

4. "Can the Fe K-alpha line reliably predict supernova remnant progenitors?"

   Siegel, J., Dwarkadas, V. V., Frank, K. A., & Burrows, D. N. 2021b, ApJ, 922, 67

3. "Resonant Chains of Exoplanets: Libration Centers for Laplace Angles"

   Siegel J., & Fabrycky, D. 2021a, AJ, 161, 290

2. "Analysis of XMM-Newton Observations of Supernova Remnant W49B and Clues to the Progenitor"

   Siegel, J., Dwarkadas, V. V., Frank, K., & Burrows, D. N. 2020b, ApJ, 904, 175

1. "Smoothed particle inference analysis and abundance calculations of DEM L71, and comparison to SN explosion models"

   Siegel, J., Dwarkadas, V. V., Frank, K., Burrows, D. N., & Panfichi, A. 2020a, Astronomische Nachrichten, 341, 163

Articles

1. "Elemental Abundances in Supernova Remnant W49B as Clues to Its Progenitor"

   Siegel, J., Dwarkadas V. V., Frank, K., Burrows, D. N. 2020, Research Notes of the AAS, Volume 4, August 2020

Abstracts

2. "SPI Analysis and Abundance Calculations of W49B"

   Siegel, J., Dwarkadas, V., Frank, K., & Burrows, D. 2020, in American Astronomical Society Meeting Abstracts,Vol. 236, American Astronomical Society Meeting Abstracts 236, 134.032

1. "SPI Analysis and Abundance Calculations of DEM L71 and W49B, and Comparison to SN explosion Models"

   Frank, K. A., **Siegel, J.**, Dwarkadas, V., Burrows, D. N., & Panfichi, A. 2020, in American Astronomical Society Meeting Abstracts, American Astronomical Society Meeting Abstracts, 377.02

Awards and Grants

College Research Fellows (Hoeft) Award | University of Chicago	Nov. 2020 to June 2021
Chambliss Astronomy Student Award | American Astronomical Society	June 2020
Micro-Metcalf Grant | University of Chicago	Spring 2020
Summer Action Grant | University of Chicago	June 2019
University Scholar Award | University of Chicago	2018 to present
Dean's list | University of Chicago	2018 to present

Presentations

Talk:	Midstates Consortium Research Symposium	Oct. 2021
Talk:	California Institute of Technology Summer Seminar	Aug. 2021
Poster:	University of Chicago Undergraduate Research Symposium	June 2021
Poster:	236th American Astronomical Society Meeting	June 2020
Talk:	University of Chicago Undergraduate Research Symposium	June 2020
Poster:	Midstates Consortium for Math and Science	Nov. 2019
Poster:	UCISTEM Undergraduate Research Symposium	Oct. 2019

Leadership and service

Teaching assistant: University of Chicago Department of A. & A. 2020—2021

ASTR 211 | Computational Techniques in Astrophysics
ASTR 205 | Intro. to Python Programming with Applications to Astro Statistics

Actively involved in designing assignments, setting the curricula, and adapting the class to a virtual setting

Vice president: Society of Physics Students, Univ. of Chicago Chapter March 2020 to present

Organized a fundraiser to support students affected by the pandemic, planned talks by faculty members, and implemented a series of events focused on undergraduate research

Student coordinator: "Taking the Next Step" conference Oct. 2019 to Jan. 2021

Recruited alumni and organized panel events for an annual conference-style career exploration and networking event held by the University of Chicago

Keynote panelist Oct. 2020 and Oct. 2021

"Applying for STEM Research Opportunities and Building Academic Relationships"
"UChicago Careers in Science, Technology, Engineering, and Mathematics (UCISTEM) Undergraduate Research Symposium"

Skills

Advanced knowledge of `python` programming

Proficient in `C`, `C++`, `stan`, `HTML`, `CSS`, and `Bash` programming

Extensive experience with cluster computing

Additional Experience

Writer: University of Chicago Chapter of Triple Helix April 2019 to April 2020

Proposed and wrote popular science articles on galaxy evolution, interstellar objects, and undergraduate research for *Spectrum* magazine

Student:	Tutorials on Mech. Design for Scientific Apparatus, Univ. of Chicago	Summer 2019
Student:	Experimental Particle Physics Reading Seminar, Univ. of Chicago	Winter 2019