

JENNIFER SIEBEN

<https://jsieben7.github.io/> ★ JSieben@iwu.edu ★ <https://www.linkedin.com/in/jennifersieben/>

EDUCATION

Indiana University, Ph.D., Astronomy

December 2022

Minor: Scientific Computing

Illinois Wesleyan University, B.A., Physics

May 2016

PROFESSIONAL SUMMARY

Creatively-minded astronomer interested in using multi-wavelength surveys to study the history of the universe. Proven experience developing a large-scale survey which included writing code for processing and analyzing optical and spectroscopic data taken with a 4-meter-class telescope. Over a decade of science communication skills through academic papers, public talks, teaching, and articles written for an audience of physicists. Adept at thinking of visual presentation methods, adapting to unpredictable observing conditions, and using color-coded spreadsheets for project management.

RESEARCH EXPERIENCE

PhD candidate, Indiana University

2016—2022

Advisor: John Salzer

The Star Formation Across Cosmic Time project is a narrow-band survey using the wide-field imager on the WIYN 3.5m telescope to discover emission line galaxies. This survey uses a combination of broad-band and narrow-band images to discover emission-line sources. Follow-up spectroscopy is then used to confirm the targets. Using nine redshift windows, we study galaxies up to $z = 1$.

I was responsible for carrying out observations, processing the data, writing code to measure the photometric properties of the galaxies, and performing data analysis to determine the average star formation rate at each redshift window. During my time, we completed imaging of 41 fields, each with ~ 200 emission-line sources. The survey is ongoing.

Undergraduate Research Assistant, Illinois Wesleyan University

Summers 2014, 2016

Advisor: Linda French

Observations of Trojan asteroids with the Cerro Tololo 0.9m telescope to determine rotation periods in order to discover a spin barrier and a limit of the density for comparison with cometary nuclei.

Observations of Delta Scuti stars with the small campus telescope to determine rotation periods.

PROFESSIONAL SKILLS

WIYN 3.5m telescope (Kitt Peak, Arizona)

50+ nights, ODI and Hydra

CTIO 0.9m telescope (Cerro Tololo, Chile)

10 nights

Computer Languages

Python, IRAF, HTML, CSS, and SQL

Computer Software Knowledge

Google Drive Suite, MS Office Suite,

Adobe Creative Suite, L^AT_EX, and *Mathematica*

SCIENCE WRITING AND ASTRONOMY OUTREACH

Associate Editor, *Physics Today*, American Institute of Physics

2023—2025

Physics Today is the flagship magazine for the American Institute of Physics. Subjects include recent research news, educational developments, and topic-specific articles, all related to physics.

- Wrote and edited over 50 articles between 500 and 4000 words for print and online.

- Led the revitalization of *Physics Today*'s social media presence, designing workflows for social media which granted the ability to be nimble when planning a posting schedule that met needs with different time restrictions and priority levels.
- Frequently collaborated with external authors and graphic designers outside of the *Physics Today* team.

ScIU blog, Indiana University – <https://sciu.indiana.edu/> 2016—2022

A graduate-student run, peer-edited science blog which publishes weekly articles covering science news, ongoing research, and interviews with IU professors.

- Member for 6 years, co-Editor-at-Large for 4 years.
- Led bi-monthly meetings of the blog staff to brainstorm article topics, organize outreach efforts, and improve our writing skills.
- Organized three science communication symposia, bringing in guest speakers and leading workshops for a day of learning open to the campus community.

Astronomy Public Outreach, Indiana and Illinois Wesleyan Universities 2014—2022

Led public observing tours at campus observatories, led astronomy sessions at local public school events, volunteered at campus wide Science Fest (IU), organized lunar eclipse party attended by ~100 people (IWU), served as department outreach coordinator for 2 years (IU), revitalised IU Astro twitter account.

Intern at Adler Planetarium Summers 2013, 2015, 2016, Spring 2017

Led public tours at Adler Planetarium's Doane Observatory with solar observing and monthly nighttime observing sessions accompanied by short presentations about astronomy. Also assisted in the Space Visualization Lab.

TEACHING EXPERIENCE

Associate Instructor, Indiana University 2016— 2018, 2021—2022

Discussion leader and grader for A107: The Art of Astronomy, A221/A222: General Astronomy I/II, A103: The Search for Life in the Universe, and A100: The Solar System. 200 level courses were majors courses.

Instructor of Record, Indiana University Summer 2018, 2021

Instructor for A107: The Art of Astronomy (online course)

Taught an introductory science class for non-astronomy majors focusing on understanding astronomical images. Teaching included filming tutorials and assessing the understanding of the students. Updated course structure and material in preparation for 2021 course.

Instructor, Indiana University December 2020

Co-Instructor for "COLL-X 311: Communicating Science in a Digital Age"

Designed and co-taught an online class covering how to evaluate audience, write and edit a science communication article, find or create relevant graphics, and promote it on social media. Wrote and recorded video lectures and evaluated student assignments. Students all created a blog post with associated social media and some were published on ScIU.

Science Communication Workshops

Led science writing workshops for campus events in coordination with other ScIU leadership. Shortened versions of these workshops were also turned into invited classroom talks.

- **Day-long workshop** May 2019
ScIU Blogging Workshop Day
- **"Diving into SciComm"** November 2019
ScIU: Conversations in Science at Indiana University 3rd Annual Science Communication Symposium

- “Diving into SciComm” November 2019
IU Journal of Undergraduate Research 3rd Annual Research Day
- Undergraduate Teaching Assistant**, Illinois Wesleyan University 2015—2016
Facilitated lab activities and graded for A101: Introduction to Astronomy

PROFESSIONAL SOCIETIES

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| American Astronomical Society | Member |
| DC Science Writer’s Association | Member |
| SPIE - International Society of Optics and Photonics | Member, 2014—2016 |

CONFERENCE POSTERS

1. Kimsey-Miller, B., Salzer, J., Brunker, S., Carr, D., **Sieben, J.** 2024. Exploring the Environments of SFACT Star-forming Galaxies. American Astronomical Society Meeting Abstracts #243, 306.15.
2. **Sieben, J.**, Salzer, J., Van Sistine, A., Gronwall, C. 2020. Luminosity Functions Derived from Three Distinct Emission Line Selected Galaxy Samples. American Astronomical Society Meeting Abstracts #235, 208.06.
3. **Sieben, J.**, Salzer, J., Carr, D. J. 2019. The SFACT Survey - Star Formation Across Cosmic Time. American Astronomical Society Meeting Abstracts #233, 144.04.
4. Brucker, M. J., Nault, K. A., Hammergren, M., **Sieben, J.**, Gyuk, G., Solontoi, M. R. 2015. Preliminary Light Curve Results of NEOs from the Characterization and Astrometric Follow-Up Program at Adler Planetarium. AAS/Division for Planetary Sciences Meeting Abstracts #47 307.07.

TALKS AND INTERVIEWS

- “The Latest in Heliophysics” Lake County Astronomical Society July 2024
- “Observational Astronomy” Lake County Astronomical Society February 2023
- “Star Formation Across Cosmic Time (SFACT) survey” AAS Dissertation talk January 2023
- “Oven Baked Galaxies” Public Science Symposium 2021, Indiana University June 2021
- “#57 - The Universe’s Newborn Stars” Starts With a Bang podcast June 2020
- “Reaching Beyond the Stars” Bays Mountain StarFest October 2018

AWARDS

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| Frank & Margaret Edmondson Prize for Teaching | April 2021 |
| College of Arts and Sciences Dissertation Research Fellowship \$ 20,000 | 2020—2021 |
| IUB Provost’s Travel Award for Women in Science | Fall 2018, Fall 2019, Fall 2021 |
| Indiana Space Grant PhD Fellowship \$ 12,000 | 2018—2019, 2019—2020 |
| Goethe Link Prize for Outreach and Public Education in Astronomy | May 2019, April 2020 |
| College of Arts and Sciences Travel Award | Fall 2019 |

PUBLICATION LIST

1. Salzer, J. J., Carr, D. J., **Sieben, J.**, et al., “[The Star Formation Across Cosmic Time \(SFACT\) Survey. I. Survey Description and Early Results from a New Narrow-Band Emission-Line Galaxy Survey](#)”, *AJ* **166**, 81 (2023).
2. **Sieben, J.**, Carr, D. J., Salzer, J. J., et al., “[The Star Formation Across Cosmic Time \(SFACT\) Survey. II. The First Catalog of Targets from a New Narrow-Band Survey for Emission-Line Objects](#)”, *AJ* **166**, 101 (2023).
3. Carr, D. J., **Sieben, J.**, Salzer, J. J., et al., “[The Star Formation Across Cosmic Time \(SFACT\) Survey. III. Spectroscopy of the Initial Catalog of Emission-Line Objects](#)”, *AJ* **166**, 102 (2023).
4. French, L. M., Stephens, R. D., Coley, D., Wasserman, L. H., and **Sieben, J.**, “[Rotation lightcurves of small jovian Trojan asteroids](#)”, *Icarus* **254**, 1 (2015).