Ryan Hazlett

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EDUCATION

University of Toledo **August 2020 - present**
Ph.D. Candidate, Physics
Thesis Advisor: Prof. Eli Visbal

University of Oklahoma **August 2016 - May 2020**
Bachelor of Science, Astrophysics
Research Advisor: Prof. Karen Leighly

RESEARCH INTERESTS

I am a theoretical astrophysicist and cosmologist primarily studying the formation of the first stars and galaxies and the origins of supermassive black holes. I use both semi-analytic methods and hydrodynamical cosmological simulations to make predictions for the next generation of observatories like the James Webb Space Telescope.

EXPERIENCE

Research Assistant **December 2020 - present**
University of Toledo, Advisor: Prof. Eli Visbal

Undergraduate Research Assistant **April 2018 - May 2020**
University of Oklahoma, Advisor: Prof. Karen Leighly

NSF REU student **May 2018 - July 2018**
University of Oklahoma, Advisor: Prof. Karen Leighly

FYRE program student **October 2016 - May 2017**
University of Oklahoma, Advisor: Prof. Mukremin Kilic

High-School Physics Research Experience **June 2014 - September 2015**
Oklahoma State University, Advisor: Prof. Mario F. Borunda

GRANTS AND AWARDS

Physics & Astronomy Outstanding Department Service Award (University of Toledo) 2023 - 2024
Astronomy Seminar Best Graduate Student Presentation (University of Toledo) Spring 2021
Department of Physics & Astronomy Outstanding Senior Award (University of Oklahoma) 2020
Oklahoma State Regents Institutional Nominee Award, $38,000 2016 - 2020

SERVICE

Physics & Astronomy Python Workshop Organizer (University of Toledo) Summer 2023 - present
Department of Physics & Astronomy Photographer (University of Toledo) Fall 2024 - present
Prospective Student Host (University of Toledo) Fall 2024 - Spring 2025
Astronomy Journal Club Host (University of Toledo) Fall 2023 - present
Physics & Astronomy Grad Task Organizer (University of Toledo) Fall 2022 - Spring 2024

MENTORING

Merrill Edleman, University of Toledo Undergraduate March 2025 - present
Anneysha Bahar, Ottawa Hills High School Student October 2023 - May 2024
Thomas Behling, University of Toledo Undergraduate May 2023 - May 2024

TEACHING AND OUTREACH

Lab TA, *General Physics I* (University of Toledo)	Summer 2025 - present
Lab TA, *Physics-Sci & Eng Majors I-B1* (University of Toledo)	Fall 2020 - Spring 2021
Lunar Sooners Member (University of Oklahoma)	2016 - 2018

CONFERENCE PRESENTATIONS

- *Cosmic Frontier Center Conference*, UT Austin, Austin, TX. May 2025. **Poster:** "High-Redshift Atomic Cooling Halos generally lead to Intermediate-Massive Black Hole Seeds"
- *First Light Conference*, MIT, Cambridge, MA. June 2023. **Poster:** "Calibrating Semi-analytic Models of the First Galaxies with Hydrodynamical Simulations to Enable Computationally Efficient Observational Predictions"
- *Artificial Intelligence and Maching Learning at OU*, Norman, OK. September 2019. **Poster:** "Quantifying Massive Outflows using the MCMC Spectral Synthesis Code SimBAL"
- *AAS* 233^{rd} *Meeting*, Seattle, WA. January 2019. **Poster:** "Massive Outflows in CII Low-Ionization Broad Absorption Line Quasars"

PUBLICATIONS

4. Behling, T., **Hazlett, R.,** Kulkarni, M. & Visbal, E. Evaluating the Accuracy of Reionization Prescriptions in Semi-analytic Models of the First Stars and Galaxies. *arXiv e-prints,* arXiv:2508.04808. arXiv: 2508.04808 [astro-ph.GA] (Aug. 2025).
3. **Hazlett, R.,** Kulkarni, M., Visbal, E. & Wise, J. H. A Framework to Calibrate a Semianalytic Model of the First Stars and Galaxies to the Renaissance Simulations. **978,** 13. arXiv: 2403.05624 [astro-ph.GA] (Jan. 2025).
2. Visbal, E., **Hazlett, R.** & Bryan, G. L. LAP1-B is the First Observed System Consistent with Theoretical Predictions for Population III Stars. *arXiv e-prints,* arXiv:2508.03842. arXiv: 2508.03842 [astro-ph.GA] (Aug. 2025).
1. Feathers, C. R., Kulkarni, M., Visbal, E. & **Hazlett, R.** A Global Semianalytic Model of the First Stars and Galaxies Including Dark Matter Halo Merger Histories. **962,** 62. arXiv: 2306.07371 [astro-ph.GA] (Feb. 2024).