

# Curriculum Vitae: Samuel John Dunham

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## Education

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**Vanderbilt University**, Nashville TN  
*Ph.D Astrophysics*, May 2023 (expected)

**Fisk University**, Nashville TN  
*M.A. Physics*, December 2018

**University of Michigan**, Ann Arbor MI  
*B.S. Astronomy and Astrophysics*, May 2016  
*B.S. Interdisciplinary Physics with Astronomy*, May 2016

- Graduated Magna Cum Laude

**Washtenaw Community College**, Ann Arbor MI  
*Associate's Degree in General Studies in Math and Natural Science*, May 2013

## Honors/Awards

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- Graduated with high honors from University of Michigan
- Graduated with high honors from Washtenaw Community College

## Fellowships/Grants

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- Received McMinn summer research fellowship for outstanding students in the Department of Physics and Astronomy (May 2020)
- Received McMinn summer research fellowship for outstanding students in the Department of Physics and Astronomy (May 2019)
- Received McMinn summer research fellowship for outstanding students in the Department of Physics and Astronomy (May 2018)
- Received honors grant for poster presentation at American Astronomical Society (AAS) conference (January 2016)

## Research Experience

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**Vanderbilt University**, Nashville TN

*Research Assistant*, 08/2016 - Present

- Developing module to solve general relativistic hydrodynamics equations with a discontinuous Galerkin method as part of a new code designed to simulate core-collapse supernovae

**University of Michigan**, Ann Arbor MI

*Research Assistant*, 06/2014 - 05/2016

- Analyzed data for multiple images of background sources due to strong gravitational lensing by galaxy clusters
- Found robust lens models for several galaxy clusters, from which was deduced the mass of the cluster core, the total magnification provided by the cluster, the location of the source, and its morphology

## Training/Development

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**Michigan State University**, East Lansing MI

*Binary Neutron Star Merger Summer School*, 05/16/2018 – 05/18/2018

**Vanderbilt University**, Nashville TN

*Statistics Workshop for Astronomers*, 05/05/2017 – 05/11/2017

## Publications

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Samuel J. Dunham et al., “A discontinuous Galerkin method for general relativistic hydrodynamics in thornado”, (2020) *J. Phys.: Conf. Ser.* **1623** 012012

Eirik Endeve et al., “thornado-hydro: towards discontinuous Galerkin methods for supernova hydrodynamics”, (2019) *J. Phys.: Conf. Ser.* **1225** 012014

Samuel J. Dunham et al., “Lens Model and Source Reconstruction Reveal the Morphology and Star Formation Distribution in the Cool Spiral LIRG SDSS J1438+1454”, (2019) *ApJ*, 875:18

## Presentations

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Samuel J. Dunham, et al., “A Discontinuous Galerkin Method for General Relativistic Hydrodynamics in thornado”, *AstroNum 2019*, oral

Samuel J. Dunham, et al., “A Discontinuous Galerkin Method for General Relativistic

Hydrodynamics in `thornado`", APS April 2019, oral

Samuel J. Dunham, et al., "A Discontinuous Galerkin Method for General Relativistic Hydrodynamics", APS April 2018, poster

Samuel J. Dunham, et al., "Strong Lens Models for 10 Galaxy Clusters from the Sloan Giant Arcs Survey", AAS January 2016, poster

### **Other Publications, Dissemination, and/or Products**

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- GitHub page: <https://github.com/dunhamsj>
- Professional website: <https://www.samueljdunham.com>