

# Dr. Benjamin Lee Davis — Curriculum Vitæ

**Websites** — Personal: <https://bendavis007.github.io> • Work: <http://bit.ly/benCAP3> • Old Work: <https://astronomy.swin.edu.au/staff/benjamindavis.html>  
**Mailing Addresses** — Home: 6970 SE Kiwi Ln, Riverton, KS 66770, USA • Office: 509½ S Main St, Galena, KS 66739, USA  
**Email Addresses** — [ben.davis@nyu.edu](mailto:ben.davis@nyu.edu) • [benjamindavis@astro.swin.edu.au](mailto:benjamindavis@astro.swin.edu.au) • [bendavis007@hotmail.com](mailto:bendavis007@hotmail.com) • [benjaminleedavis007@gmail.com](mailto:benjaminleedavis007@gmail.com)  
**Profiles** — <https://www.linkedin.com/in/bendavis007> • [https://www.researchgate.net/profile/Benjamin\\_Davis9](https://www.researchgate.net/profile/Benjamin_Davis9) • <https://orcid.org/0000-0002-4306-5950>  
**Telephone Numbers** — Home: +1 (620) 848-3981 • Mobile: +1 (620) 215-1547

## EDUCATION

**University of Arkansas**, Fayetteville, Arkansas, USA Aug 2008 – May 2015

Doctor of Philosophy (Ph.D.) in **Space & Planetary Sciences**

Thesis: **Logarithmic Spiral Arm Pitch Angle of Spiral Galaxies: Measurement and Relationship to Galactic Structure and Nuclear Supermassive Black Hole Mass**

Advisor: **Dr. Julia Kenefick**

Research areas: Astrophysics, extragalactic astronomy, structure & dynamics of disk galaxies.

Cumulative GPA: 4.0000 / 4.0000 (117 credit hours)

- News Articles
  - The Galena Sentinel Times: “Out of this World”
  - The Galena Sentinel Times: “Davis Receives His Doctorate of Philosophy”

**Pittsburg State University**, Pittsburg, Kansas, USA Aug 2003 – May 2008

- Bachelor of Science (B.S.) in Mathematics
- Bachelor of Science (B.S.) in Physics
- Minor in Music

*Magna Cum Laude*

Cumulative GPA: 3.9397 / 4.0000 (199 credit hours)

**Riverton High School**, Riverton, Kansas, USA Aug 1999 – May 2003

*Valedictorian & Senior Class President*

Cumulative GPA: 4.0000 / 4.0000



## WORK EXPERIENCE

**New York University Abu Dhabi** Sep 2020 – Aug 2023

Center for Astro, Particle, and Planetary Physics (CAP<sup>3</sup>)

CAP<sup>3</sup> Fellow, Research Associate

Supervisor: **Prof. Andrea Valerio Macciò**

- News Articles
  - The Galena Sentinel Times: “In Our Midst – Fast Forward”

**Swinburne University of Technology** Aug 2016 – Jul 2020

Centre for Astrophysics and Supercomputing

Postdoctoral Research Fellow in Galaxy Structure

Project: Reducing and analyzing galaxy images via bulge/bar/disc decompositions. I am responsible for modeling the radial distribution of optical and/or near-infrared stellar light in nearby (<200 Mpc) galaxies with an emphasis on discoveries and publications related to the (central black hole)-(host bulge) connection and/or compact massive spheroids and/or galaxies with partially depleted cores or additional nuclear components.

Supervisor: **Prof. Alister Graham**

Research areas: Astrophysics, extragalactic astronomy, structure & dynamics of disk galaxies.

- Additional service:
  - Accredited Supervisor for Masters and Ph.D. Students.
    - \* Associate Supervisor for Ph.D. Student [Nandini Sahu](#).
    - \* Associate Supervisor for Ph.D. Student [Suei-Hei \(Dexter\) Hon](#).
  - Served on the Ph.D. Student Review Panels for [Ellert van der Velden](#), [Jonah Gannon](#), [Liyualem Tilahun](#), and [Arianna Dolfi](#).

[Arkansas Tech University](#), Department of Physical Sciences Aug 2015 – May 2016  
Visiting Assistant Professor of Physics

[University of Arkansas](#), Department of Physics Aug 2015 – Dec 2015  
Visiting Assistant Professor of Physics

**RESEARCH  
EXPERIENCE**

[LISA Consortium](#) May 2020 –  
Member

[ARC Centre of Excellence for Gravitational Wave Discovery \(OzGrav\)](#) Feb 2018 –  
Affiliate

[Arkansas Galaxy Evolution Survey](#), University of Arkansas May 2015 – Aug 2015  
Postdoctoral Researcher  
Project: Measuring the Number of Arms in Spiral Galaxies and Relating that to Predictions of Density Wave and Swing-Amplification Theories  
Supervisors: Drs. Julia and Daniel Kenefick  
Research areas: Astrophysics, extragalactic astronomy, structure & dynamics of disk galaxies.

[Arkansas Galaxy Evolution Survey](#), University of Arkansas Jan 2009 – May 2015  
Graduate Research Assistant  
Project: Logarithmic Spiral Arm Pitch Angle of Spiral Galaxies: Measurement and Relationship to Galactic Structure and Nuclear Supermassive Black Hole Mass  
Supervisors: Drs. Julia and Daniel Kenefick  
Research areas: Astrophysics, extragalactic astronomy, structure & dynamics of disk galaxies.

[Arkansas Center for Space and Planetary Sciences](#), University of Arkansas Aug 2008 – May 2015  
Graduate Student  
Research areas: Martian surface chemistry and exoplanet demographics.

[Cluster Lensing and Supernova Survey with Hubble](#), Jet Propulsion Laboratory  
Visiting Student Research Program Intern Jun 2011 – Aug 2011  
Project: Spectral Energy Distribution Fitting to Galaxy Cluster Abell 383  
Supervisor: [Dr. Leonidas Moustakas](#)  
Research areas: Dark matter, galaxy clusters, Abell 383, high-redshift galaxies, gravitational lensing, spectral energy distributions.

**PEER-REVIEWED  
PUBLICATIONS**

21) [Davis, B. L.](#) & [Graham, A. W.](#), “Refining the mass estimate for the intermediate-mass black hole candidate in NGC 3319,” submitted to the *Publications of the Astronomical Society of Australia*, December 21, 2020.

20) [Graham, A. W.](#), [Soria, R.](#), [Davis, B. L.](#), [Kolehmainen, M.](#), [Maccarone, T.](#), [Miller-Jones, J.](#), [Motch, C.](#), & [Swartz, D. A.](#), “Spiral galaxies of the Virgo cluster: Eleven more intermediate-mass black hole candidates with an associated X-ray point-source,” submitted to the *Monthly Notices of the Royal Astronomical Society*, December 16, 2020.

19) [Abdeen, S.](#), [Kenefick, D.](#), [Kenefick, J.](#), [Eufrazio, R.](#), [Davis, B. L.](#), [Miller, R.](#), [Shields, D. W.](#), [Monson, E. B.](#), [Bassett, C.](#), & [O’Mara, H.](#), “Evidence in favour of density wave theory through star formation history maps and spatially resolved stellar clusters,” submitted to the *Monthly Notices of the Royal Astronomical Society*, October 24, 2020.

- 18) Sahu, N., Graham, A. W., & [Davis, B. L.](#), “Defining the (Black Hole)–Spheroid Connection with the Discovery of Morphology-dependent Substructure in the  $M_{\text{BH}}-D_{\text{sph}}$  and  $M_{\text{BH}}-R_{\text{e,sph}}$  Diagrams: New Tests for Advanced Theories and Realistic Simulations,” *The Astrophysical Journal*, 903(2), 97, November 6, 2020.
- 17) Abdeen, S., Kennefick, D., Kennefick, J., Miller, R., Shields, D. W., Monson, E., & [Davis, B. L.](#), “Determining the Co-Rotation Radii of Spiral Galaxies Using Spiral Arm Pitch Angle Measurements at Multiple Wavelengths,” *Monthly Notices of the Royal Astronomical Society*, 496, 1610, June 8, 2020.
- 16) Sahu, N., Graham, A. W., & [Davis, B. L.](#), “Revealing Hidden Substructures in the  $M_{\text{BH}}-\sigma$  Diagram, and Refining the Bend in the  $L-\sigma$  Relation,” *The Astrophysical Journal*, 887, 10, December 10, 2019.
- 15) [Davis, B. L.](#), Graham, A. W., & Combes, F., “A Consistent Set of Empirical Scaling Relations for Spiral Galaxies: The  $(v_{\text{max}}, M_{\text{DM}})-(\sigma_0, M_{\text{BH}}, \phi)$  Relations,” *The Astrophysical Journal*, 877, 64, May 24, 2019.
- 14) Sahu, N., Graham, A. W., & [Davis, B. L.](#), “Black Hole Mass Scaling Relations for Early-Type Galaxies. I.  $M_{\text{BH}}-M_{*,\text{sph}}$  and  $M_{\text{BH}}-M_{*,\text{gal}}$ ,” *The Astrophysical Journal*, 876, 155, May 15, 2019.
- 13) Miller, R., Kennefick, D., Kennefick, J., Shameer Abdeen, M., Monson, E., Eufrazio, R. T., Shields, D. W., & [Davis, B. L.](#), “Investigating the Origins of Spiral Structure in Disk Galaxies Through a Multi-wavelength Study,” *The Astrophysical Journal*, 874, 177, April 5, 2019.
- News Article Coverage
    - University of Arkansas News: “Research on Disk Galaxies Sheds Light on Movement of Stars”
- 12) Graham, A. W., Soria, R., & [Davis, B. L.](#), “Expected intermediate mass black holes in the Virgo cluster. II. Late-type galaxies,” *Monthly Notices of the Royal Astronomical Society*, 484, 814, March 21, 2019.
- 11) [Davis, B. L.](#), Graham, A. W., & Cameron, E., “Black Hole Mass Scaling Relations for Spiral Galaxies. I.  $M_{\text{BH}}-M_{*,\text{sph}}$ ,” *The Astrophysical Journal*, 873, 85, March 6, 2019.
- 10) [Davis, B. L.](#), Graham, A. W., & Cameron, E., “Black Hole Mass Scaling Relations for Spiral Galaxies. II.  $M_{\text{BH}}-M_{*,\text{tot}}$  and  $M_{\text{BH}}-M_{*,\text{disk}}$ ,” *The Astrophysical Journal*, 869, 113, December 17, 2018.
- 9) [Davis, B. L.](#), Graham, A. W., & Seigar, M. S., “Updating the (Supermassive Black Hole Mass) – (Spiral Arm Pitch Angle) Relation: A Strong Correlation for Galaxies with Pseudobulges,” *Monthly Notices of the Royal Astronomical Society*, 471, 2187, October 21, 2017.
- Jul 2017, Swinburne Media Release: “Spiral Arms Allow School Children to Weigh Black Holes”
    - UK Version (MNRAS)
  - English Media: IFL Science, Gizmodo, Science Daily, PHYS.ORG, AZO Quantum, COSMOS Magazine, Space Daily, ineffableisland.com, MS-CHAT.COM, Across the Universe, AlphaGalileo, Health Medicine Network, EurekAlert, sciencesprings, & Astro Watch.
  - Non-English Media: Greek1, Greek2, Greek3, Italian1, Italian2, Italian3, German, Dutch1, Dutch2, Dutch3, Czech, Polish, Spanish, Portuguese, Vietnamese1, Vietnamese2, Vietnamese3, Vietnamese4, Vietnamese5, Indonesian, & Japanese.
  - Radio:
    - Duluth Public Radio KUMD 103.3 FM
    - Space Nuts with Dr Fred Watson & Andrew Dunkley (1:07 - 10:10)
    - SpaceTime with Stuart Gary (7:31 - 18:14)

- 8) Koliopanos, F., Ciambur, B. C., Graham, A. W., Webb, N. A., Coriat, M., Mutlu-Pakdil, B., Davis, B. L., Godet, O., Barret, D., & Seigar, M. S., “Searching for Intermediate Mass Black Holes in Dwarf Galaxies with Low Luminosity AGN: A Multiple-method Approach,” *Astronomy & Astrophysics*, Volume 601, A20, Dec 2016.
- 7) Mutlu-Pakdil, B., Seigar, M. S., & Davis, B. L., “The Local Black Hole Mass Function Derived from the  $M_{BH} - P$  and the  $M_{BH} - n$  Relations,” *The Astrophysical Journal*, 830, 117, Oct 2016.
- 6) Pour-Imani, H., Kenefick, D., Kenefick, J., Davis, B. L., Shields, D. W., & Shameer Abdeen, M., “Strong Evidence for the Density-wave Theory of Spiral Structure in Disk Galaxies,” in *The Astrophysical Journal Letters*, 827, L2, Aug 2016.

- News Article Coverage

- PHYS.ORG: “Astrophysicists Discover Mechanism for Spiral-Arm Formation in Disk Galaxies”
  - University of Arkansas News: “U of A Astrophysicists Discover Mechanism for Spiral-Arm Formation in Disk Galaxies”
  - Sky & Telescope: “Why Galaxies Have Spiral Arms”
- 5) Davis, B. L., Kenefick, D., Kenefick, J., Westfall, K. B., Shields, D. W., Flatman, R., Hartley, M. T., Berrier, J. C., Martinsson, T. P. K., & Swaters, R. A., “A Fundamental Plane of Spiral Structure in Disk Galaxies,” *The Astrophysical Journal Letters*, 802, L13, Mar 2015.
  - 4) Seigar, M. S., Davis, B. L., Berrier, J. C., & Kenefick, D., “Constraining Dark Matter Halo Profiles and Galaxy Formation Models Using Spiral Arm Morphology. II. Dark and Stellar Mass Concentrations from 13 Nearby Face-On Galaxies,” *The Astrophysical Journal*, 795, 90, Nov 2014.
  - 3) Davis, B. L., Berrier, J. C., Johns, L., Shields, D. W., Hartley, M. T., Kenefick, D., Kenefick, J., Seigar, M. S., & Lacy, C. H. S., “The Black Hole Mass Function Derived from Local Spiral Galaxies,” *The Astrophysical Journal*, 789, 124, Jul 2014.
  - 2) Berrier, J. C., Davis, B. L., Kenefick, D., Kenefick, J., Seigar, M. S., Barrows, R. S., Hartley, M. T., Shields, D. W., Bentz, M. C., & Lacy, C. H. S., “Further Evidence for a Supermassive Black Hole – Pitch Angle Relation,” *The Astrophysical Journal*, 769, 132, Jun 2013.
  - 1) Davis, B. L., Berrier, J. C., Shields, D. W., Kenefick, J., Kenefick, D., Seigar, M. S., Lacy, C. H. S., & Puerari I., “Measurement of Galactic Logarithmic Spiral Arm Pitch Angle Using Two-Dimensional Fast Fourier Transform Decomposition,” *The Astrophysical Journal Supplement Series*, 199, 33, Apr 2012.

- Software - <http://ascl.net/1608.015>

If you are viewing this CV on paper, you may access a full list of my publications from my ORCID by visiting <https://orcid.org/0000-0002-4306-5950> or scanning the QR code below.



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Refereed – <https://ui.adsabs.harvard.edu/public-libraries/nG-zssYWRzSOGs1CUq8MUQ>

All – <https://ui.adsabs.harvard.edu/user/libraries/1IplwMbdTmunVHkWfUR6XA>

**MANUSCRIPTS**

- 2) Fusco, M. S., Davis, B. L., Kenefick, D., Seigar, M. S., & Kenefick, J., “Pitch Angle Distribution Function of Local Spiral Galaxies and Its Role in Galactic Structure,” (draft) Jul 2019.

1) Shields, D. W., Boe, B., Pfuntz, C., Davis, B. L., Hartley, M., Pour Imani, H., Slade, Z., Kenefick, D., & Kenefick, J., “Spirality: A Novel Way to Measure Spiral Arm Pitch Angle,” arXiv:1511.06365, Nov 2015.

- Software - <http://ascl.net/1512.015>

#### MAGAZINE ARTICLE

Davis, B. (2017). “How You Can Weigh Black Holes,” *Australasian Science*, (Volume 38 | Number 5), pp.14-16, Sept/Oct 2017.

- Preprint - [https://bendavis007.github.io/PDFs/Australasian\\_Science.pdf](https://bendavis007.github.io/PDFs/Australasian_Science.pdf)

#### PRESENTATIONS

26) Davis, B. L., “The Latest Black Hole Mass Scaling Relations: Revealing Morphology Dependence, Substructure, and Implications for the Coevolution of Black Holes with their Host Galaxies,” *CAP<sup>3</sup> Seminar Series*, Oct 2020. [Seminar Talk]

25) Davis, B. L., “Title TBD,” Seminar Speaker at the *International Centre for Radio Astronomy Research at the University of Western Australia*, Mar 2020 (postponed due to the COVID-19 pandemic). [Invited Talk]

24) Davis, B. L., “Substructure in Black Hole Scaling Diagrams and Implications for the Coevolution of Black Holes and Galaxies,” *IAU Symposium 359: Galaxy Evolution and Feedback Across Different Environments (GALFEED)*, Mar 2020. [Poster Presentation]

- Poster
- Proceedings (Preprint)

23) Davis, B. L., “Black Hole Mass Scaling Relations,” Seminar Speaker at the *Center for Astro, Particle, and Planetary Physics at New York University Abu Dhabi*, Feb 2020. [Invited Talk]

22) Davis, B. L., “Beethoven and the Voyager Golden Records,” *Melbourne Chamber Orchestra’s Beethoven Gala Dinner*, Oct 2019. [Invited Talk]

21) Davis, B. L. & Graham, A. W., “The Latest Black Hole Mass Scaling Relations,” *Feedback and its Role in Galaxy Formation*, Jun 2019. [Contributed Talk]

- PowerPoint Slides
- Meeting Report

20) Davis, B. L. & Graham, A. W., “The Latest Black Hole Mass Scaling Relations,” *Supermassive Black Holes: Environment and Evolution*, Jun 2019. [Contributed Talk]

- PowerPoint Slides

19) Davis, B. L., Graham, A. W., Sahu, N., & Cameron, E., “Black Hole Mass Scaling Relations,” *American Astronomical Society Meeting Abstracts, Vol. 221, 206.02*, Jun 2019. [Contributed Talk]

- PowerPoint Slides

18) Davis, B. L., “Black Hole Mass Scaling Relations for Spiral Galaxies,” *Astrophysics Colloquium: The University of Melbourne*, Sep 2018. [Seminar Talk]

- PowerPoint Slides

17) Davis, B. L., “Black Hole Mass Scaling Relations for Spiral Galaxies Determined from Pitch Angles and Multicomponent Structural Decompositions,” *ASA 2018 Annual Scientific Meeting*, Jun 2018. [Poster Presentation]

- Video (starts at 1:25:55)
- Poster

16) Davis, B. L., “Black Hole Mass Scaling Relations for Spiral Galaxies Determined from Pitch Angles and Multicomponent Structural Decompositions,” *Galactic Rings: Signposts of Secular Evolution in Disk Galaxies*, May 2018. [Contributed Talk]

- Video (starts at 3:49:30)
- PowerPoint Slides

- 15) Davis, B. L., “Black Hole Mass Scaling Relations for Spiral Galaxies,” *California Institute of Technology, Astronomy Tea Talks*, Jan 2018. [Seminar Talk]
- 14) Davis, B. L., “Updating the (Supermassive Black Hole Mass) – (Spiral Arm Pitch Angle) Relation: A Strong Correlation for Galaxies with Pseudobulges,” *National Astronomical Observatories, Chinese Academy of Sciences, Colloquium*, Oct 2017. [Seminar Talk]
- 13) Davis, B. L., “Updating the (Supermassive Black Hole Mass) – (Spiral Arm Pitch Angle) Relation: A Strong Correlation for Galaxies with Pseudobulges,” *ASA 2017 Annual Scientific Meeting*, Jul 2017. [Contributed Talk]
- 12) Davis, B. L., “Spiral Arm Pitch Angle: Measurement and Relationship to Spiral Galaxy Structure and Supermassive Black Hole Mass,” *ANITA Workshop 2017*, Feb 2017. [Contributed Talk]
- 11) Davis, B. L., “Spiral Arm Pitch Angle: Measurement and Relationship to Spiral Galaxy Structure and Supermassive Black Hole Mass,” *Swinburne University of Technology, Centre for Astrophysics and Supercomputing, Colloquia Series*, Dec 2016. [Seminar Talk]
- 10) Davis, B. L., “A Fundamental Plane of Spiral Structure in Disk Galaxies,” *A Lowell Observatory Workshop: The Formation and Evolution of Exponential Disks in Galaxies*, Oct 2014. [Poster Presentation]
- 9) Davis, B. L., “The Black Hole Mass Function Derived from Local Spiral Galaxies,” *Friday Scientific Lunch Talk at NOAO-Tucson*, Nov 2013. [Seminar Talk]
- 8) Davis, B. L., Berrier, J. C., Johns, L., Shields, D. W., Kenefick, D., Kenefick, J., Seigar, M. S., & Lacy, C. H. S., “The Black Hole Mass Function Derived from Local Spiral Galaxies,” *Structure and Dynamics of Disk Galaxies, ASP Conference Series, Vol. 480, 2014, p. 204*, Aug 2013. [Contributed Talk]
- 7) Davis, B. L., “Logarithmic Spiral Arm Pitch Angle of Late-Type Galaxies: Measurement and Relationship to Galactic Nuclear Supermassive Black Hole Mass,” *American Astronomical Society Meeting Abstracts, Vol. 221, 206.02*, Jan 2013. [Contributed Talk]
- 6) Davis, B. L., Berrier, J. C., Johns, L., Shields, D. W., Kenefick, D., Kenefick, J., Seigar, M. S., Lacy, & C. H. S., “The Local Black Hole Mass Function Derived from Spiral Galaxies,” *American Astronomical Society Meeting Abstracts, Vol. 220, 430.08*, Jun 2012. [Poster Presentation]
- 5) Davis, B. L., Berrier, J. C., Johns, L., Shields, D. W., Kenefick, D., Kenefick, J., Seigar, M. S., Lacy, & C. H. S., “The Local Black Hole Mass Function Derived from Spiral Galaxies,” *42nd Annual Mid-American Regional Astrophysics Conference*, Apr 2012. [Contributed Talk]
- 4) Davis, B. L., Berrier, J. C., Shields, D. W., Kenefick, J., Kenefick, D., Seigar, M. S., Lacy, C. H. S., & Puerari, I., “Measurement of Galactic Logarithmic Spiral Arm Pitch Angle Using Two-Dimensional Fast Fourier Transform Decomposition,” *American Astronomical Society Meeting Abstracts, Vol. 219, 246.01*, Jan 2012. [Poster Presentation]
- 3) Davis, B. L., “Measurement of Galactic Logarithmic Spiral Arm Pitch Angle Using Two-Dimensional Fast Fourier Transform Decomposition,” *Annual Mid-American Regional Astrophysics Conference*, Apr 2011. [Contributed Talk]
- 2) Davis, B. L., Berlanga Medina, J. E., Shields, D. W., Kenefick, J., Kenefick, D., Berrier, J., Seigar, M. S., Lacy, C. H. S., & AGES, “Investigating the Clustering and Color of Galaxies in the COMBO-17 Chandra Deep Field South Survey and Possible Effects on Spiral Arm Pitch Angle,” *Bulletin of the American Astronomical Society, Vol. 42, American Astronomical Society Meeting Abstracts #215, 435.17*, Jan 2010. [Poster Presentation]
- 1) Davis, B. L., Chevrier, V. F., Altheide, T. S., & Swaffar, C., “Reflectance Spectra of Low-Temperature Chloride and Perchlorate Hydrates and Their Relevance to the Martian Surface,” *Lunar and Planetary Institute Science Conference Abstracts, Vol. 40, 1387*, Mar 2009. [Contributed Talk]

**TEACHING  
EXPERIENCE**

**General Physics II** Arkansas Tech University  
Visiting Assistant Professor of Physics

Jan 2016 – May 2016

<b>Introduction to Physical Science</b> , Arkansas Tech University Visiting Assistant Professor of Physics	Aug 2015 – May 2016
<b>Physical Science Laboratory</b> , Arkansas Tech University Visiting Assistant Professor of Physics	Aug 2015 – May 2016
<b>Physics Laboratory I</b> , Arkansas Tech University Visiting Assistant Professor of Physics	Aug 2015 – May 2016
<b>Physics Laboratory II</b> , Arkansas Tech University Visiting Assistant Professor of Physics	Aug 2015 – May 2016
<b>University Physics I</b> , University of Arkansas Visiting Assistant Professor of Physics	Aug 2015 – Dec 2015
<b>Private Violin Lessons</b> , taught from my home in Goshen, AR 4 students, weekly lessons	2013 – 2014
<b>Survey of the Universe</b> , University of Arkansas Teaching Assistant	Aug 2013 – Dec 2014
<b>Survey of the Universe Laboratory</b> , University of Arkansas Instructor	Aug 2012 – Aug 2013
<b>College Physics II Drill</b> , University of Arkansas Instructor	Jan 2012 – May 2012
<b>University Physics I Laboratory</b> , University of Arkansas Instructor	Aug 2008 – Dec 2008
<b>Astronomy Laboratory</b> , Pittsburg State University Teaching Assistant	Jan 2006 – May 2008

**AWARDED  
OBSERVING  
TIME**

Three Nights <a href="#">WIYN 3.5-m Telescope</a> , pODI For observation of AGN with spiral galaxy hosts at $z < 0$ .	Nov 2013
<ul style="list-style-type: none"> <li>News Article Coverage - <a href="#">University of Arkansas News: “Physicists Awarded Telescope Time at Kitt Peak National Observatory”</a></li> </ul>	

**ACADEMIC  
HONORS  
& AWARDS**

2nd Place in the Physics Division of the “Abstract to Contract” Fifth Annual Graduate Student Research Symposium University of Arkansas Graduate School For placing in a poster presentation competition amongst other physics graduate students at the University of Arkansas.	Feb 2012
<ul style="list-style-type: none"> <li>News Article Coverage - <a href="#">University of Arkansas News: “Winners Announced for From Abstract to Contract: Graduate Student Research Competition”</a></li> </ul>	
1st Place in the Physical Science Division of the “Abstract to Contract” Third Annual Graduate Student Research Symposium University of Arkansas Graduate School For winning a poster presentation competition amongst other physical science graduate students at the University of Arkansas.	Feb 2010
Honorable Mention for the Chambliss Astronomy Achievement Student Award 215th American Astronomical Society (AAS) Meeting For recognition of exemplary research by undergraduate and graduate students who present at one of the poster sessions at the meetings of the AAS.	Jan 2010
Mendenhall Top Senior Math Student <a href="#">Pittsburg State University Department of Mathematics</a> For having the highest GPA among the graduating mathematics seniors.	May 2008
Kansas Governor’s Scholar Kansas State Department of Education The Governor’s Scholars program honors the top academic one percent of Kansas high school seniors.	May 2003

	Kansas Honor Scholar University of Kansas Alumni Association A distinction for high school seniors who demonstrate a consistent record of superior academic achievement merits recognition as outstanding in the State of Kansas.	Oct 2002
<b>FELLOWSHIPS, SCHOLARSHIPS, &amp; GRANTS</b>	International Astronomical Union (IAU) Symposia Travel Grant <a href="#">IAU Symposium 359: Galaxy Evolution and Feedback Across Different Environments (GALFEED)</a> €1000 travel grant to attend the GALFEED conference at Bento Gonçalves, RS, Brazil, March 2-6, 2020.	Nov 2019
	Research Infrastructure Program <a href="#">Arkansas Space Grant Consortium</a> Project: The Host Galaxies of Active Galactic Nuclei at Moderate Redshifts	2014
	Graduate Fellowship Program <a href="#">Arkansas Space Grant Consortium</a>	2013
	Scholarship Program <a href="#">Arkansas Space Grant Consortium</a> Project: An Investigation of the Evolution of Spiral Galaxies Using <i>N</i> -Body Simulations and the Possible Effects of Dark Matter Concentration and Galaxy Environment.	2011
	Doctoral Academy Fellowship <a href="#">University of Arkansas Graduate School</a> Supplemental fellowship from the graduate school to the top $\approx 40$ incoming doctoral students as determined by GRE/GMAT scores.	2008 – 2012
<b>CAMPUS ACTIVITIES</b>	<a href="#">University Symphony Orchestra</a> , University of Arkansas Violin (Section I, Concertmaster, Section II Principal), Viola (Principal)	Aug 2009 – May 2016
	<a href="#">Southeast Kansas Symphony Orchestra</a> , Pittsburg State University Violin (Section I, Concertmaster, Section II), Viola (Principal)	Aug 2003 – May 2008
	<a href="#">The PSU Chamber Orchestra</a> , Pittsburg State University Violin (Section I, Concertmaster, Section II), Viola (Principal)	Aug 2003 – May 2008
<b>OTHER WORK EXPERIENCE</b>	<a href="#">Arkansas Philharmonic Orchestra</a> , Bentonville, Arkansas, USA Section Violin I	May 2009 – May 2016
	<a href="#">Litigation Resource Group</a> , Fort Smith, Arkansas, USA Videographer/Accident Reconstruction Consultant	Jul 2012 – Feb 2013
	<a href="#">North Arkansas Symphony Orchestra</a> , Fayetteville, Arkansas, USA Section Violin I & II	Nov 2006 – Apr 2008
	<a href="#">Sentinel Times</a> , Galena, Kansas, USA Junior Editor/Mail & Delivery Services	Jun 2000 – Jun 2008
	<a href="#">Old Riverton Store</a> , Riverton, Kansas, USA Clerk/Salesman/Food Service/Horticulturist	Jun 1998 – Jun 2008
	<b>Freelance Musician</b> Kansas, Missouri, & Arkansas Violinist/Violist	Jun 1996 – Jul 2016
<b>LANGUAGES</b>	English: Native language	
<b>CITIZENSHIP</b>	US Citizen; Born in Joplin, Missouri, USA	
<b>SKILLS, INTERESTS, &amp; EXPERTISE</b>	Typing Proficiency: 67 WPM (285 CPM) with 100% accuracy	



T<sub>E</sub>X, L<sup>A</sup>T<sub>E</sub>X, X<sub>Y</sub>T<sub>E</sub>X, MATLAB, Mathematica, R, Adobe Creative Cloud, IRAF, DS9, Gimp, Supermongo, Microsoft Office Suite, Unix/Linux, Fortran, C++, IDL, HTML, Google Analytics, Python, MPI, Machine Learning, SQL, HPC, Problem Solving, Data Science, Data Engineering, Data Analysis, Observing, Classical Music, Music Performance, Oration, Teaching, Logarithmic Spiral Arm Pitch Angle, Multicomponent Galaxy Decomposition, Telescopes, Black Holes, Data Reduction, Galaxy Evolution, Astronomy, Astrophysics, Active Galactic Nuclei, Galaxy Structure, Galaxy Dynamics, Quasars, Galaxy Clusters, Dark Matter, Galaxy Formation, Space & Planetary Sciences, Martian Surface Chemistry, Golf, Tennis, Baseball, Basketball, Violin, Viola, Guitar, Bass, Piano, Ukulele, Saxophone, Singing, SCUBA Diving, Carpentry, Woodworking, Games (Card, Board, & Video), etc.

## REFERENCES

### **Dr. Andrea Valerio Macciò** (Postdoctoral Supervisor)

Associate Professor and Program Head of Physics  
New York University Abu Dhabi, Center for Astro, Particle, and Planetary Physics  
PO Box 129188, Saadiyat Island, Abu Dhabi, United Arab Emirates  
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### **Dr. Alister Graham** (Postdoctoral Supervisor)

Professor  
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