Corbin Taylor
Astrophysics Ph.D. Candidate

August 27, 2018
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Education

- **University of Maryland** — College Park, MD
  Ph.D. Candidate M.S. Astronomy — *2013 -*
  - Current GPA: 3.05
  - Currently a PhD candidate, focusing in theoretical and computational astrophysics.
  - Studies the X-ray signatures of supermassive black holes using computer simulations.
  - Committee: Dr. Christopher Reynolds, Dr. Coleman M. Miller, Dr. Richard Mushotzky
- **University of Toledo** — Toledo, OH
  B.S. Astrophysics & B.S. Pure Mathematics — *2008-2013*
  - Overall GPA: 3.81
  - Astrophysics GPA: 3.89
  - Pure Mathematics GPA: 3.60
  - Graduated Magna Cum Laude
  - Departmental Honors in Physics
- **University of Findlay** — Findlay, OH
  High School Dual-Enrollment — *2007-2008*
  - Overall GPA: 4.00

Research Experience

- **Publications**
  - Taylor, C. and Reynolds, C.S. 2018; *X-Ray Reverberation From Black Hole Accretion Disks With Realistic Geometric Thickness*, submitted to ApJ for publication
  - Taylor, C. and Reynolds, C.S. 2018; *Exploring The Effects of Disk Thickness On The Black Hole Reflection Spectrum*, ApJ, 855, 120
  - Knauth, D.C.; Taylor, C.J.; Ritchey, A.M.; Federman, S.R.; and Lambert, D.L. 2017; *Parsec-scale Variations in the $^7Li/^6Li$ Isotope Ratio Toward IC 348 And The Parsec OB 2 Association*, ApJ, 835, L16
  - Taylor, C.; Boylan-Kolchin, M.; Torrey, Paul; Vogelsberger, Mark; and Hernquist, Lars 2016; *The Mass Profile Of The Milky Way To The Virial Radius From The Illustris Simulation*, MNRAS 461, 3483
  - Taylor, C.J.; Richey, A.M.: Federman, S.R.; and Lambert, D.L. 2012; *The $^7Li/^6Li$ Isotope Ratio Near The Supernova Remnant IC 443*, ApJ 750 L15.
  - Richey, A.M.: Taylor, C.J.; Federman, S.R.; and Lambert, D.L. 2012; *Lithium Isotope Ratiso Near The Supernova Remnant IC 443*, Mem. S. A. It. Suppl. Vol. 22, 137.

- **Presentations**
  - Talk at AXIS Workshop 2018 - Washington, D.C.
    - Taylor, C.
      The Effects Of Disk Thickness On The AGN Broad Iron Line
      6 August 2018
  - Talk at University of Durham - Durham, Durham, UK
    - Taylor, C.
      The Effects Of Disk Thickness On AGN X-Ray Reflection
      29 June 2018
  - Talk at University of Southampton - Southampton, Hampshire, UK
    - Taylor, C.
      The Effects Of Disk Thickness On AGN X-Ray Reflection And Reverberation
      25 June 2018
  - Talk at University of Oxford - Oxford, Oxfordshire, UK
    - Taylor, C.
      The Effects Of Disk Thickness On AGN X-Ray Reflection And Reverberation
      18 June 2018
  - Poster at AAS 2018 - Washington, D.C.
    - Taylor, C. and Reynolds, C.S.
      The Effects of Accretion Disk Thickness On The Black Hole Reflection Spectrum
      8-12 January 2018
  - Poster at HEAD 2017 - Sun Valley, ID
    - Taylor, C. and Reynolds, C. S.
      The Effects Of Accretion Disk Geometry On AGN Reflection Spectra
      20-24 August 2017
  - Poster at HEAD 2016 - Naples, FL
    - Taylor, C. and Reynolds, C. S.
      Disk Geometry And The Black Hole Reflection
      3-7 April 2016
  - Undergraduate Colloquim at University of Toledo
    - Fall 2009-2011; Spring 2010-2012
  - Poster at WSU Undergraduate Physics Research Conference in Detroit, MI
    - Taylor, C. J.; Ritchey, A. R.; Federman, S. R.; Lambert, D. L.
      Li Production in Supernova Remnant IC 443
      November 2009
  - Poster at Posters at the Capital in Columbus, OH
    - Taylor, C. J.; Ritchey, A. R.; Federman, S. R.; Lambert, D.L.
      Lithium in IC 443: A Study in Light Element Synthesis
      April 2011
  - Poster at AAS meeting in Seattle, WA
    - Ritchey, A. R.; Taylor, C. J.; Federman, S. R.; Lambert, D. L.
      Interstellar Lithium and Rubidium in the Diffuse Gas Near IC 443
      January 2010
  - Talk at the Midwest Astrochemistry Meeting at UI in Urbana, IL
    - Ritchey, A. R.; Taylor, C. J.; Federman, S. R.; Lambert, D. L.
      The interstellar $^7Li/^6Li$ Ratio in the Diffuse Gas Near IC 443
      November 2010

- **Research Programs**
  - REU at University of Toledo Summer 2010
  - REU at University of Michigan Summer 2011
  - SASP at Space Telescope Science Institute Summer 2012
- **Data Used**
  - Illustris (Vogelsburger et al. 2014)
  - Millennium-I (Springel et al. 2005)
  - Hobby-Eberly Telescope HRS
  - Copernicus UV
  - Interstellar Medium Absorption Profile Spectrograph
  - Sloan Digital Sky Survey Data Release 8
  - Hubble Space Telescope Cosmic Origins Spectrograph EUV

Work Experience

- **University of Maryland - Department of Astronomy** June 2014 - Present
  Graduate Research Assistant
  - Modeled the X-ray spectrum of AGN using fully relativistic computer simulations.
  - Analyzed data from massive multi-billion particle cosmological simulations
  - Created my own scientific simulation and analysis software using C++ and Python.
  - Independently prepared three scientific papers (Taylor & Reynolds 2018a,b; Taylor et al. 2016)
  - Presented my work a number of scientific conferences and universities.
- **University of Maryland - Department of Astronomy** August 2013 - May 2014
  Graduate Teaching Assistant
  - Fall 2013: ASTR 100 - 0102, 0107
  - Spring 2014: ASTR: ASTR 100 - 0201, 0202
  - Prepared and gave 50 minute discussions for each section once a week.
  - Graded in-class materials, homework, and exams.
- **University of Toledo - Department of Physics and Astronomy** January 2009 - August 2013
  Undergraduate Research Assistant
  - Reduced and analyzed data using standard tools of the field.
  - Led and participated in discussions on professional scientific literature.
  - Collaborated with individuals from many different universities.
  - Aided in the preparation of scientific publications.

Volunteer And Outreach Experience

- **University of Maryland - Department of Astronomy** Spring 2017
  Prospective Student Visit Coordinator
  - Led the preparation for the prospective student visits on 9-11 March, 30 March, and 3 April 2017.

  - Recruited volunteers for the student-led planning committee.
  - Led the structuring of the planning committee and delegated tasks.
  - Organized the travel details of 19 prospective students.
  - Organized a visit to Goddard Space Flight Center in Greenbelt, MD.

- **Graduate Resources Advancing Diversity With Maryland Astronomy And Physics (GRAD-MAP**
  Team Member
  - Collaborated with minority-serving universities and colleges in Maryland, Virginia, and D.C.
  - Helped prepare and manage a week-long workshop for January 2016 and January 2017 that helped minority students develop skills necessary for a STEM career.
  - Led the preparation and teaching of a multi-day Python workshop as part of the GRAD-MAP 2017 Winter Workshop

Awards, Grants & Honours

C.V. Wolfe Scholarship in the Natural Sciences 2011-2012; 2012-2013
Chad Tabory Award for Outstanding Undergraduate Research 2010
Sigma Pi Sigma Membership 2010
Pi Mu Epsilon Membership 2010
National Society of Collegiate Scholars Membership 2009
President's List . . . . . Spring 2009; Fall 2009; Fall 2011; Fall 2012
Dean's List . . . . . Spring 2010; Fall 2010
Rocket Gold Scholarship . . . . . Fall 2008-Spring 2012
First Generation Award . . . . . Fall 2008-Spring 2012

Skills

- Programming and Markup Languages
  - **Expert:** C++, Python (2 & 3)
  - **Intermediate:** IDL
  - **Basic:** R
- Field-Specific Software
  - **Expert:** IRAF
  - **Intermediate:** GALFIT, SExtractor
  - **Basic:** Veusz
- General Software
  - **Expert:** UNIX/Linux, OS X, Microsoft Windows, Microsoft Excel, Microsoft PowerPoint
  - **Intermediate:** GitHub, LaTex, Evernote, Notion, Jupyter
- Foreign Languages
  - **Elementary:** German