Erin T. Boettcher

Curriculum Vitae

Department of Astronomy
University of Maryland, College Park
4296 Stadium Drive, College Park, MD 20742

Email: eboettch@umd.edu
https://www.erinboettcher.com

Research Interests

The baryon cycle; interstellar and circumgalactic media; galactic fountains and winds; gaseous, disk-halo interfaces; magnetic fields and cosmic rays; spectroscopy.

Education

Ph.D. Astronomy (minor: Physics), University of Wisconsin, Madison, WI, August 2018

M.S. Astronomy, University of Wisconsin, Madison, WI, August 2014

B.S. Astrophysics, Haverford College, Haverford, PA, May 2012, *Magna cum laude* with Honors

Professional Experience

2023–Present **Assistant Research Scientist**, University of Maryland, NASA GSFC, and CRESST-II

2021–2023 **Postdoctoral Associate**, University of Maryland, NASA GSFC, and CRESST-II

2018–2021 **Postdoctoral Scholar**, The University of Chicago

2014–2017 **National Science Foundation Graduate Research Fellow**, University of Wisconsin

2012–2018 **Graduate Research Assistant**, University of Wisconsin
- *Advisors:* Profs. Ellen Zweibel & Jay Gallagher

2011–2012 **Undergraduate Research Assistant**, Haverford College
- *Advisor:* Prof. Beth Willman

Fellowships, Grants, and Awards

2022 Co-PI, *Hubble Space Telescope* Cycle 30 Archival Program ($142,000)
- *Elucidating Galaxy Quenching with Absorption Probes of Halos around Low-mass Dwarfs*
- Co-PIs: Polzin, A., **Boettcher, E.,** and Qu, Z.

2017 Stebbins Award, University of Wisconsin Astronomy Dept.
- Annual award honoring a significant research achievement made during the previous year

2017 Bautz Graduate Travel Fellowship, University of Wisconsin Astronomy Dept. ($2,000)

2014 National Science Foundation Graduate Research Fellowship ($138,000)
- *A Spectroscopic Study of Extraplanar Diffuse Ionized Gas in Disk Galaxies*

Observing Programs as Principal Investigator

X-ray Imaging and Spectroscopy Mission (*XRISM*)

2024 *Testing the Hot Wind Paradigm in the Prototypical Starburst Galaxy NGC 253*
- Priority C Target: 200 ks; $181,689 (if observed)

Hubble Space Telescope (*HST*)

2024 *Resolving the Origins of Extraplanar Dust using UV Reflection Nebulae*
- 10 orbits; award pending

Magellan 6.5m Telescopes

2018 *The Dynamical State of Extraplanar Diffuse Ionized Gas Along the Star-Formation Sequence*
- 2 nights; Faculty PI: H.-W. Chen

Southern African Large Telescope (SALT)

2017 *The Kinematics of Extraplanar Diffuse Ionized Gas from Low to High SFR* (12.5 hrs)

2016 *The Dynamical State of Extraplanar Diffuse Ionized Gas in NGC 5775* (8 hrs)

2015 *A Kinematic Study of Diffuse Ionized Gas in M83* (9 hrs)

2015 *[OII] as a Tracer of Extraplanar Diffuse Ionized Gas in NGC 5775* (5 hrs)

2014 *The Energy Balance of Extraplanar Diffuse Ionized Gas in NGC 253 and NGC 3044* (7 hrs)

WIYN 3.5m Observatory

2015 *Probing the Extraplanar Diffuse Ionized Gas Properties of M33* (3 nights)

2014 *A Kinematic Study of Diffuse Ionized Gas in NGC 891* (4 half nights)

Refereed Publications

Summary: 10 papers as 1st author (139 total citations), 2 papers as 2nd author, 16 papers as co-author.

First-Author Publications:

10. **Boettcher, E.** & Hodges-Kluck, E., accepted for publication in ApJ
- *Evidence for a Fast Soft X-ray Wind in M82 from XMM-RGS*

9. **Boettcher, E.** & Hodges-Kluck, E., accepted for publication in ApJ
- *Illuminating the Incidence of Extraplanar Dust Using Ultraviolet Reflection Nebulae with GALEX*

8. **Boettcher, E.**, Gupta, N., Chen, H.-W., & 18 co-authors 2022, ApJL, 926, L33 [3 cit.]
- *Discovery of a Damped Lyman-alpha Absorber Originating in a Spectacular Interacting Dwarf Galaxy Pair at z = 0.026*

7. **Boettcher, E.**, Chen, H.-W., Zahedy, F. S., & 18 co-authors 2021, ApJ, 913, 18 [15 cit.]
- *The Cosmic Ultraviolet Baryon Survey (CUBS) II: Discovery of an H_2-Bearing DLA in the Vicinity of an Early-Type Galaxy at z = 0.576*

6. **Boettcher, E.**, Gallagher, J. S., III, Ohyama, Y., & 6 co-authors 2020, A&A, 637, A17 [10 cit.]
- *VV 655 and NGC 4418: Implications of an interaction for the evolution of a LIRG*

5. **Boettcher, E.**, Gallagher, J. S., III, & Zweibel, E. G. 2019, ApJ, 885, 160 [12 cit.]
- *A Dynamical Study of Extraplanar Diffuse Ionized Gas in NGC 5775*

4. **Boettcher, E.**, Gallagher, J. S., III, & Zweibel, E. G. 2017, ApJ, 845, 155 [13 cit.]
- *Detection of Extraplanar Diffuse Ionized Gas in M83*

3. **Boettcher, E.**, Zweibel, E. G., Gallagher, J. S., III, & Benjamin, R. A. 2016, ApJ, 832, 118 [28 cit.]
- *Testing a Dynamical Equilibrium Model of Extraplanar Diffuse Ionized Gas in NGC 891*

2. **Boettcher, E.**, Zweibel, E. G., Yoast-Hull, T. M., & Gallagher, J. S., III 2013, ApJ, 779, 12 [17 cit.]
- *Cosmic Ray Sampling of a Clumpy Interstellar Medium*

1. **Boettcher, E.**, Willman, B., Fadely, R., & 9 co-authors 2013, AJ, 146, 94 [41 cit.]
- *A Search for RR Lyrae Stars in Segue 2 and Segue 3*

Other Publications:

*Indicates primary advisor on student-led paper

18. Mishra, N., Johnson, S. D., Rudie, G. C., & 13 co-authors, incl. **Boettcher, E.**, accepted for publ. in ApJ
- *The Cosmic Ultraviolet Baryon Survey (CUBS) IX: The enriched circumgalactic and intergalactic medium around star-forming field dwarf galaxies traced by O VI absorption*

17. *Zhu, H., **Boettcher, E.**, & Chen, H.-W. 2024, MNRAS, 532, 3252
- *Spatially resolved properties of extraplanar diffuse ionized gas in NGC 3511 and NGC 3513*

16. Deka, P. P., Gupta, N., Chen, H.-W., & 14 co-authors, incl. **Boettcher, E.**, 2024, A&A, 687, A50 [4 cit.]
- *MALS discovery of a rare H I 21 cm absorber at $z \sim 1.35$: Origin of the absorbing gas in powerful active galactic nuclei*

15. Qu, Z., Chen, H.-W., Johnson, S. D., & 12 co-authors, incl. **Boettcher, E.**, 2024, ApJ, 968, 8 [10 cit.]
- *The Cosmic Ultraviolet Baryon Survey (CUBS) VII. On the Warm-hot Circumgalactic Medium Probed by O VI and Ne VIII at $0.4 \lesssim z \lesssim 0.7$*

14. Li, J. I.-H., Johnson, S. D., **Boettcher, E.**, & 11 co-authors 2024, ApJ, 965, 143 [2 cit.]
- *The Cosmic Ultraviolet Baryon Survey (CUBS) VIII. Group Environment of the Most Luminous Quasars at $z \approx 1$*

13. Chen, M. C., Chen, H.-W., Rauch, M., & 9 co-authors, incl. **Boettcher, E.**, 2024, ApJ, 962, 98 [2 cit.]
- *An Ensemble Study of Turbulence in Extended QSO Nebulae at $z \approx 0.5 - 1$*

12. Qu, Z., Chen, H.-W., Rudie, G. C., & 12 co-authors, incl. **Boettcher, E.**, 2023, MNRAS, 524, 512 [18 cit.]
- *The Cosmic Ultraviolet Baryon Survey (CUBS) VI: Connecting physical properties of the cool circumgalactic medium to galaxies at $z \approx 1$*

11. Chen, H.-W., Qu, Z., Rauch, M., & 11 co-authors, incl. **Boettcher, E.**, 2023, ApJL, 955, L25 [14 cit.]
- *The Cosmic Ultraviolet Baryon Survey: Empirical Characterization of Turbulence in the Cool Circumgalactic Medium*

10. Wagenveld, J. D., Klöckner, H.-R., & 22 co-authors, incl. **Boettcher, E.**, 2023, A&A, 673, A113 [5 cit.]
- *The MeerKAT Absorption Line Survey: Homogeneous continuum catalogues towards a measurement of the cosmic radio dipole*

9. Chen, M. C., Chen, H.-W., Rauch, M., & 9 co-authors, incl. **Boettcher, E.**, 2023, MNRAS, 518, 2354 [12 cit.]
- *Empirical constraints on the turbulence in QSO host nebulae from velocity structure function measurements*

8. Qu, Z., Chen, H.-W., Rudie, G. C., & 11 co-authors, incl. **Boettcher, E.**, 2022, MNRAS, 516, 4882 [26 cit.]
- *The Cosmic Ultraviolet Baryon Survey (CUBS) V: On the Thermodynamic Properties of the Cool Circumgalactic Medium at $z \lesssim 1$*

7. Cooper, T. J., Rudie, G. C., Chen, H.-W., & 18 co-auth., incl. **Boettcher, E.** 2021, MNRAS, 508, 4359 [20 cit.]
- *The Cosmic Ultraviolet Baryon Survey (CUBS) IV: The complex multiphase circumgalactic medium as revealed by partial Lyman limit systems*

6. Zahedy, F. S., Chen, H.-W., Cooper, T. J., **Boettcher, E.**, & 17 co-authors 2021, MNRAS, 506, 877 [36 cit.]
- *The Cosmic Ultraviolet Baryon Survey (CUBS) III: Physical properties and elemental abundances of Lyman-limit systems at $z < 1$*

5. Combes, F., Gupta, N., Muller, S., & 20 co-authors, incl. **Boettcher, E.** 2021, A&A, 648, A116 [17 cit.]
- *PKS1830-211: OH and HI at z = 0.89 and the first MeerKAT UHF spectrum*

4. Gupta, N., Jagannathan, P., Srianand, R., & 32 co-authors, incl. **Boettcher, E.** 2021, ApJ, 907, 11 [28 cit.]
- *Blind HI and OH absorption line search: first results with MALS and uGMRT processed using ARTIP*

3. Zahedy, F. S., Chen, H.-W., **Boettcher, E.,** & 3 co-authors 2020, ApJL, 904, L10 [9 cit.]
- *Evidence For Late-Time Feedback from the Discovery of Multiphase Gas in a Massive Elliptical at z = 0.4*

2. Chen, H.-W., Zahedy, F. S., **Boettcher, E.**, & 19 co-authors 2020, MNRAS, 497, 498 [54 cit.]
- *The Cosmic Ultraviolet Baryon Survey (CUBS) - I. Overview and the diverse environments of LLSs at $z < 1$*

1. Chen, H.-W., **Boettcher, E.**, Johnson, S. D., & 5 co-authors 2019, ApJL, 878, L33 [41 cit.]
- *A Giant Intragroup Nebula Hosting a Damped Lyα Absorber at z = 0.313*

White Papers

2. Rudie, G. C., Chen, H.-W., Newman, A. B., & 24 co-authors, incl. **Boettcher, E.** 2019, BAAS, 51, 148
- *Observing Galaxies and Dissecting their Baryon Cycle at Cosmic Noon*

1. Chen, H.-W., Johnson, S. D., Rudie, G. C., & 13 co-authors, incl. **Boettcher, E.** 2019, BAAS, 51, 329
- *Tracking the Baryon Cycle in Emission and in Absorption*

Oral Presentations

2024 Contributed Talk, XRISM Science Team Meeting #6 (Tokyo, Japan; September 2024)
- *Testing Hot Wind Models in the Prototypical Starburst Galaxy M82*

2024 Invited Talk, AAS Meeting #244 (Madison, WI, USA; June 2024)
- *Diffuse Ionized Gas as a Tracer of Star-Formation Feedback*

2024 Invited Talk, AAS Meeting #243 (New Orleans, LA, USA; January 2024)
- *Mapping the Evolution of Superbubbles with LEM*

2024 Contributed Talk, AAS Meeting #243 (New Orleans, LA, USA; January 2024)
- *Resolving the Prototypical Starburst Wind in M82 with XMM-RGS*

2023 Contributed Talk, Winds Throughout the Universe (Annapolis, MD, USA; October 2023)
- *Resolving the Prototypical Starburst Wind in M82 with XMM-RGS*

2023 Contributed Talk, Oases in the Cosmic Desert (Tempe, AZ, USA; February 2023)
- *Illuminating the Disk-Halo Connection Using UV Reflection Nebulae*

2022 Seminar, SED Director's Seminar, NASA GSFC (Greenbelt, MD, USA; May 2022)
- *Probing the co-evolution of galaxies and their gaseous reservoirs*

2022 Contributed Talk, UV Symposium, NASA GSFC (Greenbelt, MD, USA; April 2022)
- *Probing the diverse galactic environments of damped Lyman-alpha absorbers*

2022 Seminar, STScI/JHU Journal Club (Virtual Talk, Baltimore, MD, USA; March 2022)
- *Probing the diverse galactic environments of damped Lyman-alpha absorbers*

2020 Seminar, University of Michigan (Virtual Seminar, Ann Arbor, MI, USA; September 2020)
- *Tracing the Baryon Cycle at the Disk-Halo Interface*

2020 Seminar, Carnegie Observatories (Virtual Seminar, Pasadena, CA, USA; September 2020)
- *Tracing the Baryon Cycle at the Disk-Halo Interface*

2020 Invited Talk, IAP Colloquium (Virtual Meeting, Paris, France; June 2020)
- *Tracing the Baryon Cycle at the Disk-Halo Interface*

2019 Contributed Talk, GMT Community Science Meeting (Carlsbad, CA, USA; September 2019)
- *Tracing the Baryon Cycle in Emission at the Disk-Halo Interface*

2019 Contributed Talk, Nine Billion Years of Neutral Gas Evolution (Garching, Germany; July 2019)
- *Probing multiphase gaseous galactic ecosystems in absorption and emission*

2018 Chalk Talk, University of Chicago (Chicago, IL, USA; November 2018)
- *The Disk-Halo Connection: An Emission-Line Perspective*

2018 Contributed Talk, Circumgalactic Medium Workshop (Evanston, IL, USA; August 2018)
- *New Perspectives on the Dynamical State of Gaseous, Disk-Halo Interfaces*

2018 Thesis Defense, University of Wisconsin–Madison (Madison, WI, USA; July 2018)
- *New Perspectives on the Dynamical State of Extraplanar Diffuse Ionized Gas Layers*

2018 Stebbins Award Talk, University of Wisconsin–Madison (Madison, WI, USA; January 2018)
- *New Perspectives on the Dynamical State of Extraplanar Diffuse Ionized Gas Layers*

2018 Dissertation Talk, AAS Meeting #231 (National Harbor, MD, USA; January 2018)
- *New Perspectives on the Dynamical State of Extraplanar Diffuse Ionized Gas Layers*

2017 Chalk Talk, Columbia University (New York, NY, USA; December 2017)
- *Testing a Dynamical Equilibrium Model of Extraplanar Diffuse Ionized Gas Layers*

2017 Seminar, Space Telescope Science Institute (Baltimore, MD, USA; December 2017)
- *New Perspectives on the Dynamical State of Extraplanar Diffuse Ionized Gas Layers*

2017 Colloquium, Max Planck Institute for Radio Astronomy (Bonn, Germany; June 2017)
- *The Kinematics of Magnetized, Extraplanar Diffuse Ionized Gas Layers*

2017 Contributed Talk, CHANG-ES Collaboration Meeting (Bochum, Germany; June 2017)
- *Extraplanar Gas in M83: Implications for Magnetic Dynamos*

2016 Invited Talk, CHANG-ES Collaboration Meeting (Madison, WI, USA; July 2016)
- *Testing a Dynamical Equilibrium Model of the Extraplanar Diffuse Ionized Gas in NGC 891*

2016 Seminar, University of Wisconsin–Madison (Madison, WI, USA; February 2016)
- *Testing a Dynamical Equilibrium Model of the Extraplanar Diffuse Ionized Gas in NGC 891*

2016 Seminar, University of Notre Dame (Notre Dame, IN, USA; February 2016)
- *Testing a Dynamical Equilibrium Model of the Extraplanar Diffuse Ionized Gas in NGC 891*

2015 Invited Talk, WIYN Board Meeting (Madison, WI, USA; September 2015)
- *SparsePak Spectroscopy of Extraplanar Diffuse Ionized Gas in NGC 891*

2013 Seminar, University of Wisconsin–Madison (Madison, WI, USA; October 2013)
- *Cosmic Ray Sampling of a Clumpy Interstellar Medium*

2013 Contributed Talk, AAS Meeting #221 (Long Beach, CA, USA; January 2013)
- *A New RR Lyrae Star in Segue 2*

Poster Presentations

10. Boettcher, E. & Hodges-Kluck, E. HEAD Meeting, April 2024.
- *Evidence for a Fast Soft X-ray Wind in M82 from XMM-RGS*

9. Hodges-Kluck, E., **Boettcher, E.**, Bogdan, A., et al. HEAD Meeting, 110.05. March 2023.
- *Superbubble Growth, Energetics, and Breakout with the Line Emission Mapper*

8. Boettcher, E., Hodges-Kluck, E., Bogdan, A., et al. HEAD Meeting, 110.16. March 2023.
- *Completing the Multi-phase Picture of Superbubble Breakout with LEM*

7. Boettcher, E. & Hodges-Kluck, E. HEAD Meeting, 102.12. March 2023.
- *Circumgalactic Dust as a Tracer of Baryon Cycling*

6. Boettcher, E., Zweibel, E. G., Gallagher, J. S., III, et al. *Star Formation, Magnetic Fields, and Diffuse Matter in the Galaxy*, Madison, WI, USA, May 2016.
- *Testing a Dynamical Equilibrium Model of the Extraplanar Diffuse Ionized Gas in NGC 891*

5. Boettcher, E., Zweibel, E. G., Yoast-Hull, T., et al. AAS Meeting #223, 252.08. January 2014.
- *Do Cosmic Rays Sample the Mean ISM Density of Starburst Galaxies?*

4. Gaughan, A., Smith, E., Dillaire, A., et al. AAS Meeting #223, 355.06. January 2014.
- *The Haverford Variable Star Search: Ursa Major II and Bootes III*

3. Boettcher, E., Rice, E., McLean, I. S., et al. AAS Meeting #219, 345.26. January 2012.
- *Comparing Low- and High-Resolution Model Fits to T Dwarf Spectra*

2. Cunningham, E., **Boettcher, E.**, & Willman, B. AAS Meeting #218, 334.03. May 2011.
- *The Haverford Variable Star Search project: Segue 2 and Segue 3*

1. Souza, S. P., **Boettcher, E.**, Wilson, S., et al. AAS Meeting #218, 322.01. May 2011.
- *Hα Monitoring of Early-Type Emission Line Stars*

Teaching and Mentoring Experience

Teaching Assistantships

Graduate Teaching Assistant, The Evolving Universe 103, University of Wisconsin (Spring 2018)

Undergraduate Teaching Assistant, Astronomical Ideas 101, Haverford College (Fall 2010)

Students Mentored

2023–Present Volunteer mentor in the NASA-PEER program for post-bac researchers at NASA/GSFC
- Providing guidance for graduate school applications and professional development

Spring 2022 K. Aguila, Parkdale High School student and NASA GSFC Intern
- Calculated star-formation rates of nearby galaxies for a study of circumgalactic dust

2020–2024 H. Zhu, University of Chicago PhD student (previously undergraduate)
- Modeled dynamical state of diffuse ionized gas in nearby galaxies

2016–2017 L. Laufman & E. Y. Liu, University of Wisconsin undergraduates
- Performed reduction/analysis of optical emission-line spectroscopy

Leadership and Service

Journal Referee

2021–Present Referee, *MNRAS, AAS Journals*, and *A&A*

Panel Reviews

2023 *Hubble Space Telescope* Cycle 31 Panel Review

2022 Astrophysics Data Analysis Program (ADAP) Panel Review

2022 *Hubble Space Telescope* Cycle 30 External Reviewer

2020 *Hubble Space Telescope* Cycle 28 Panel Review

2019 *Hubble Space Telescope* Cycle 27 Panel Review

Community Building and Diversity, Equity, and Inclusion Efforts

2020–2021 Coordinator, Hiring Working Group, Dept. of Astronomy & Astrophysics, Univ. of Chicago
- Co-organizer of efforts to promote equity and diversity in faculty and postdoc hiring

2018–2021 Member, Inclusion, Diversity, & Equity in Astronomy (IDEA), Univ. of Chicago

July 2019 Panelist, Diversity Panel, International Cosmic Ray Conference (Madison, WI, USA)
- Topic: Reducing programmatic barriers in the proposal review process

2015–2016 Graduate Student – Faculty Liaison, Univ. of Wisconsin

2014–2015 Leader, Women of Wisconsin Strengthening Astronomy (WOWSA), Univ. of Wisconsin

Public Engagement

Public Lectures

2020 Talk, Lifelong Learning, Sulzer Library (Virtual Talk, Chicago, IL, USA; July 2020)
- *Is "Empty" Space Really Empty? Probing the Dynamic Environments of Galaxies*

2017 Talk, Astronomy Graduate Lectures for Undergraduates (Madison, WI, USA; March 2017)
- *The Life Cycle of Gas in Spiral Galaxies*

2016 Talk, East High School at UW-Madison Astronomy Dept. (Madison, WI, USA; April 2016)
- *Gas in Spiral Galaxies*

2016 Talk, Astronomy Graduate Lectures for Undergraduates (Madison, WI, USA; April 2016)
- *The Disk-Halo Connection in Spiral Galaxies*

2014 Talk, Space Place Guest Presentation (Madison, WI, USA; August 2014)
- *Cosmic Rays as Probes of the High-Energy Universe*

Public Outreach

Jan. 2020 Panelist, *Conference for Undergraduate Women in Physics (CUWiP)* (Chicago, IL, USA)

July 2019 Volunteer, *Soapbox Science Chicago*, Navy Pier (Chicago, IL, USA)

Spring 2019 Astronomy Conversations Presenter, Adler Planetarium (Chicago, IL, USA)

Aug. 2017 Volunteer, *Saturday Science*, Wisconsin Institutes for Discovery (Madison, WI, USA)

Dec. 2016 Volunteer, *Family Science Night*, Space Place (Madison, WI, USA)

Oct. 2016 Telescope Operator, *Family Weekend*, Washburn Observatory (Madison, WI, USA)

2016–2018 Graduate Student Outreach Organizer, Univ. of Wisconsin
- Department liaison for campus and public outreach opportunities
- Lead organizer, Astronomy Graduate Lectures for Undergraduates (AstroGLU)

2016–2017 Contributor, *Radio Astronomy*, weekly show on WORT 89.9 FM (Madison, WI, USA)
- 7 episodes written, 14 radio appearances

2013–2018 Telescope Operator, Washburn Observatory Open House (Madison, WI, USA)

2012–2017 Organizer, *Expanding Your Horizons* Astronomy Workshop (Madison, WI, USA)
- Lead organizer, 2015; contributor, 2012–2017

Summer 2010 Planetarium Operator, Milham Planetarium (Williamstown, MA, USA)

Professional Development Coursework

Fall 2015 Teaching in Science and Engineering – the College Classroom (UW-Madison)

Fall 2014 An Introduction to Evidence-Based Undergraduate STEM Teaching (UW-Madison)
Summer 2014 Summer School in Statistics for Astronomers (Penn State University)

Professional Membership and Collaborations

Collaborations

2022–Present Postdoctoral Member, XRISM Performance Verification Target Team, M82
2022–Present Member, Line Emission Mapper Science Working Group, Star Forming Regions
2020–Present Associate Member, MeerKAT Absorption Line Survey (MALS)
2018–Present Member, Cosmic Ultraviolet Baryon Survey (CUBS)
2016–Present Member, Continuum Halos in Nearby Galaxies – an EVLA Survey (CHANG-ES)

Professional Societies

2012–Present Member, American Astronomical Society
2012–Present Member, Phi Beta Kappa Society

Professional References

Dr. Edmund Hodges-Kluck
Research Scientist
NASA/GSFC, Code 662
Greenbelt, MD 20771, USA
edmund.hodges-kluck@nasa.gov

Dr. Andy Ptak
Research Scientist
NASA/GSFC, Code 662
Greenbelt, MD 20771, USA
andrew.ptak@nasa.gov

Prof. Hsiao-Wen Chen
Professor
The University of Chicago
William Eckhardt Research Center
5640 South Ellis Avenue, Room 599
Chicago, IL 60637, USA
hwchen@uchicago.edu

Prof. Ellen G. Zweibel
Professor
University of Wisconsin–Madison
475 N. Charter Street
Madison, WI 53706, USA
zweibel@astro.wisc.edu

Prof. J. S. Gallagher III
Professor Emeritus
University of Wisconsin–Madison
475 N. Charter Street
Madison, WI 53706, USA
jsg@astro.wisc.edu