

# Michael Rutkowski, Associate Professor

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CONTACT Department of Physics and Astronomy  
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EDUCATION **Arizona State University**, Tempe, Arizona  
Ph.D., Astrophysics–2013

- Dissertation: Morphological Perspectives on Galaxy Assembly since  $z\sim 1.5$
- Advisor: Prof. Rogier A. Windhorst
- Graduate Research Associate, 2009-2013

**Arizona State University**, Tempe, Arizona  
M.S., Astrophysics–2010

- X-ray Imaging of Supernova Remnants
- Advisor: Prof. Rogier A. Windhorst

**Hampden Sydney College**, Hampden-Sydney, Virginia  
B.S., Physics & Astronomy; Pure Mathematics–2007

- Graduated Summa Cum Laude

POST-GRADUATE POSITIONS **Post-doctoral Research Associate, Stockholm University (SWE)**: 2016-2018  
**Post-doctoral Research Associate, University of Minnesota**: 2013-2016  
**Fulbright Scholar; Yonsei University (ROK)**: 2011-2012

SHORT-TERM VISITING RESEARCH POSITIONS **IPAC (CalTech)**, Pasadena CA, Summer 2023  
**BIPAC (Oxford Uni.)**, Oxford UK: Winter 2010  
**Space Telescope Science Institute** Baltimore, MD: Fall 2008

COURSES TAUGHT **Minnesota State University**

- AST 101,102 - Introduction to Astronomy, Introduction to the Planets
- AST 115(W) - Life in the Universe
- AST 125 - Observational Astronomy
- AST 201, 215, 225 - Spherical Astronomy, Astrophysics I, Astrophysics II
- AST 351 - Telescope Operations
- AST 493 - Undergraduate Research
- AST 495/595 - Astronomy in the US Southwest
- CS 491W - Computer Science Capstone 1

**University of Minnesota**

- AST 1001 - Introduction to Astronomy

SUPERVISED  
STUDENT  
RESEARCH  
PROJECTS

**Minnesota State University**

*Preston Finger* [Masters] - RAGS: Rapid Assessment of Galaxy Spectra  
*Tyler Hagen* - Size-mass evolution of passive  $z \sim 1$  galaxies in UVCANDELS  
(currently PhD student at U. of Utah)  
*Jamal Saeed* - LyC Leakers at  $z \sim 2$  in UVCANDELS  
(currently PhD student at Baylor Uni.)

*Wen Sun* - An Instagram bot for public science engagement with UVCANDELS  
*Jon Mullaly* - CENSUS-2175: identification and selection

**Macalaster College**

*Nicholas Velikonja* - Star formation histories of  $0.3 < z < 5$  LyC Leakers in LZLCS and UVCANDELS

**Stockholm University**

*Olivia Nydestedt* - LBG progenitors of Massive, Passive ETGs - *Masters*

**University of Minnesota**

*Anthony Pahl* - Size-Mass Evolution of passive galaxies in WISP  
(currently PhD student at UCSC)

ACADEMIC  
SERVICE

**Departmental Service**

Webmaster (2018-); Scholarship Committee (2022-) Library Committee (2018-2022),  
Colloquium Committee (2018-2022)

**University Service**

Chair: University Environmental Committee (2022-Present)  
Scholars Serving Time — Waseca Federal Women's Prison Astronomy Instructor  
MN Space Grant Committee Pathfinder Chair (2018-2019)  
Midwest Undergraduate Data Analysis Competition Judge (2019)  
Honors Program Committee (2020)

**National/International Astronomy**

- 2023: NASA Neurodiversity Network Research Supervisor (Summer)
- 2022-Present: Euclid NASA Science Center User Committee
- Panel Member, NASA Astrophysics Data Analysis Program
- 2018-Present: HST Peer Review TAC External Reviewer
- 2022-Present: NASA Community College Network (Subject Matter Expert)
- 2021-Present: IAU OAD Grant Subject Matter Expert
- 2021-Present: JWST Peer Review TAC External Reviewer
- 2022-2024: AAS Sustainability Committee Chair
- 2020-2021: SACNAS Government Affairs Committee Member
- 2019-Present: AAS Sustainability Committee Member
- 2020-2021: SACNAS Government Affairs Committee Member
- Referee: MNRAS, ApJ, Nature-Astronomy
- 2012-Present: Volunteer, American Astronomical Society

PUBLIC  
OUTREACH

ASP-AAS Astronomy Ambassador; AIP Adopt-a-Physicist; Minneapolis Adult Education, Instructor; Chair of ASU-Galileoscopes Outreach; Numerous Public Talks; Annual Global Star Count

PUBLICATION  
STATISTICS

h-index	19
g-index	36
total publications	140
total publications	140
total refereed citations	
Statistics from <a href="#">ADS at HarvardSAO</a>	

SUCCESSFUL  
PROPOSALS

JWST

- Co-I: A NIRCам Pure-Parallel Imaging Survey of Galaxies Across the Universe (PI: T. Morishita), *Cy.2*
- Co-I: PASSAGE-Parallel Application of Slitless Spectroscopy to Analyze Galaxy Evolution (PI: M. Malkan), PID 1571 *Cy.1*
- Co-I: JWST Medium Deep Fields (PI: R. Windhorst), PID 1146 *Cy.0*

Hubble Space Telescope

- Co-I: ArchExtract: Maximizing Hubble's Archival Legacy of Slitless Spectroscopy
- Co-I: PIE: Parallel Ionizing Emission survey, P.I. C. Scarlata
- Co-I: The Lyman-alpha and Continuum Origins Survey, P.I. M. Hayes
- Co-I: Revealing the strong link between strong LyC leakers and enigmatic CIV emitters, P.I. D. Schaerer
- PI: CENSUS-2175: Constraining Extinction with NUV Spectroscopy of UV-bright Star-forming galaxies-via the 2175-Angstrom bump, PID 16147
- Co-I: TREASUREHUNT: Hubble's UV-Visible treasury imaging of the JWST NEP Time-Domain Field, P.I. R. Jansen
- Co-I: Low-redshift Lyman Continuum Survey, P.I. A. Jaskot
- Co-I: UVCANDELS, P.I. H. Teplitz
- Co-I: LyC escape from lensed galaxies, P.I. M. Dickinson
- Co-I: Does All The Lyman Continuum Emission Escape From Young, Low Mass Starbursts? P.I. J. Colbert
- Co-I: WFC3 IR Spectroscopic Parallel Survey, P.I. M.Malkan (Multi-cycle)
- Co-I: The Final UV Frontier: Legacy Near-UV Imaging of the Frontier Fields, P.I. B.Siana
- Co-I: The Ultraviolet Frontier: Completing the Census of Star Formation at Its Peak Epoch, P.I. B. Siana

Spitzer Space Telescope

- Co-I: Deep IRAC Imaging Lensing Galaxy Clusters for JWST 'First Light' Search. P.I. H. Yan

National Science Foundation

- Co-I, 2014-2017: Eyes on the future: optimizing science output for next generation surveys with joint crowdsourced and automated classification techniques, P.I. L.Fortson & C. Scarlata (UMN)

Ground Based Telescopes

- LBT-2018: U-band Imaging of CANDELS (LBC)
- Gemini-2015A, 2017A: Spectroscopy of OVI emitters (GMOS)
- VLT-2015SV: Mass-metallicity relation in sub-L\* galaxies at  $z \sim 1$  (MUSE)
- LBT-2013B,LBT-2014A,B: Followup of WISP Fields (MODS)
- MMT-2014A & B: Ly- $\alpha$  escape in  $z \sim 2$  WISP dwarfs (BlueChannel)
- MMT-2013A: An H-band selected Redshift Survey in the HST CANDELS-COSMOS Legacy Field (Hectospec)
- LBT-2012B,LBT-2013A: *SUPER-LBT*-Survey of the Ultraviolet universe at  $z \sim 1$  (LBC)

REFEREED  
PUBLICATIONS

Post-Arrival at MNSU—

- **Rutkowski, M.J.** et al., and T. Hagen *Recent Star Formation in  $z \sim 1$  Quiescent Galaxies*, 2023, in prep.
- **Rutkowski, M.J.** et al., and P. Finger *CENSUS-2175: Detection of the 2175Å Bump in  $z \sim 2$  Star-forming Galaxies*, 2023, in prep.

- **Rutkowski, M.J.** et al., *OVI Emission in the Halos of  $z \simeq 0.25$  Star-forming Galaxies*, Subm. to ApJ, [Withdrawn following death of father; re-submission Spring 2024]

Pre-MNSU—

- **Rutkowski, M.J.** et al., *The Lyman Continuum Escape Fraction of Emission Line-selected  $z \sim 2.5$  Galaxies Is Less Than 15%*, 2017, ApJ, 841, 27
- **Rutkowski, M.J.** et al., *The Lyman Continuum Escape Fraction of Low-Mass Star-Forming Galaxies at  $z \sim 1$* , 2016, ApJ, 819, 81
- **Rutkowski, M.J.** et al., *Early-type galaxies at intermediate redshift observed with HST WFC3: perspectives on recent star-formation*, 2014, ApJ, 796, 101
- **Rutkowski, M.J.** et al., *Investigating the Core Morphology-Seyfert Class relationship with Hubble Space Telescope Archival Imaging of local Seyfert galaxies*, 2013, AJ, 146, 11
- **Rutkowski, M.J.** et al., *A Panchromatic Catalog of Early-type Galaxies at Intermediate Redshift in the Hubble Space Telescope Wide Field Camera 3 Early Release Science Field*, 2012, ApJS, 199, 1, #4
- **Rutkowski, M.J.** et al., *An X-ray upper limit on the presence of a Neutron Star for the SMC SNR 1E0102.2-7219*, 2010, ApJ, 715, 908

REFEREED  
CO-AUTHORED  
PUBLICATIONS

Post-Arrival at MNSU —

- Mehta, V., et al., 2023, *A Spatially Resolved Analysis of Star Formation Burstiness by Comparing UV and H $\alpha$  in Galaxies at  $z \sim 1$  with UVCANDELS*, 952, 133
- Diego, J.M., et al., 2023, *JWST's PEARLS: Mothra, a new kaiju star at  $z=2.091$  extremely magnified by MACS0416, and implications for dark matter models*, arXiv:30710363D
- Smail, I., et al., 2023, *Hidden giants in JWST's PEARLS: An ultra-massive  $z = 4.26$  sub-millimeter galaxy that is invisible to HST*, arXiv:230616039S
- Polletta, M., et al., 2023, *Spectroscopy of the supernova H0pe host galaxy at redshift 1.78*, A&A, 675, 4
- Runnholm, A. et al., 2023, *On the evolution of the size of Lyman alpha haloes across cosmic time: no change in the circumgalactic gas distribution when probed by line emission*, MNRAS, 522, 4275
- McCabe, T., et al., 2023, *Searching for Intragroup Light in Deep U-band Imaging of the COSMOS Field*, acc. to PASP
- Adams, N. J., et al., 2023, *EPOCHS Paper II: The Ultraviolet Luminosity Function from  $7.5 < z < 13.5$  using 110 square arcminutes of deep, blank-field data from the PEARLS Survey and Public Science Programmes*, subm. to ApJ
- Frye, B. et al., 2023 *The JWST PEARLS View of the El Gordo Galaxy Cluster and of the Structure It Magnifies*, ApJ, 952, 81
- Frye, B., et al., *SN H0pe: three images of a SN detected near the central region of the galaxy cluster field PLCK G165.7+67.0*, TNSAN, 96, 1
- Kuschel, M. et al., 2023 *Investigating the Dominant Environmental Quenching Process in UVCANDELS/COSMOS Groups*, ApJ, 947, 17
- Windhorst, R. et al., 2023 *Webb's PEARLS: Prime Extragalactic Areas for Reionization and Lensing Science: Project Overview and First Results*, AJ, 165, 13
- Yan, H. et al. 2023, *Webb's PEARLS: Bright 1.5–2.0  $\mu\text{m}$  Dropouts in the Spitzer/IRAC Dark Field*, ApJL, ,942, 8
- Keel, W. et al. 2023, *Webb's PEARLS: dust attenuation and gravitational lensing in the backlit-galaxy system VV 191*, AJ, 165, 166
- Ashcraft, T. et al. 2022, *Deep Large Binocular Camera r-band Observations of the GOODS-N Field*, 135, 1044

- Chisholm, J. et al. 2022, *The Far-Ultraviolet Continuum Slope as a Lyman Continuum Escape Estimator at High redshift*, MNRAS, 517, 5104
- Xu, X. et al., 2022, *Tracing Ly $\alpha$  and LyC Escape in Galaxies with MgII Emission*, ApJ, 933, 202
- Flury, S. et al. 2022, *The Low-redshift Lyman Continuum Survey. I. New, Diverse Local Lyman Continuum Emitters*, ApJ, 933, 202
- Flury, S. et al. 2022, *The Low-redshift Lyman Continuum Survey. II. New Insights into LyC Diagnostics*, ApJ, 933, 202
- Marques-Chaves, R. et al., 2022, *No correlation of the Lyman continuum escape fraction with spectral hardness*, A&A, 663L, 1
- Martin, G., et al. 2022, *Preparing for low surface brightness science with the Vera C. Rubin Observatory: Characterization of tidal features from mock images*, MNRAS, 513, 1459
- Kuschel, M. et al. 2022, *Investigating the Dominant Environmental Quenching Process in UVCANDELS/COSMOS Groups*, 2023, 947, 17
- Dai, S. et al. 2021, *Spectroscopically Identified Emission Line Galaxy Pairs in the WISP Survey*, ApJ, 923,156D
- Henry, A., et al., 2021, *The Mass-Metallicity Relation at  $z \sim 1-2$  and Its Dependence on the Star Formation Rate*, ApJ, 919, 143
- Alavi, A., et al., 2020, *Lyman Continuum Escape Fraction from Low-mass Starbursts at  $z=1.3$* , ApJ, 904, 59
- Bagley, M., et al., 2020, *HST Grism-derived Forecasts for Future Galaxy Redshift Surveys*, ApJ, 897, 98
- Saha, K., et al., 2020, *AstroSat detection of Lyman continuum emission from a  $z = 1.42$  galaxy*, Nature Astronomy, 4, 1185
- Smith, Brent M. et al., 2020, *The Lyman Continuum Escape Fraction of Galaxies and AGN in the GOODS Fields*, ApJ, 897, 41

Pre-Arrival at MNSU —

- Ashcraft, T.A., et al., 2018, *Ultra-deep Large Binocular Camera U-band Imaging of the GOODS-North Field: Depth Versus Resolution*, ApJ, 130, 988
- Grazian, A., et al., 2017, *Lyman continuum escape fraction of faint galaxies at  $z \sim 3.3$  in the CANDELS/GOODS-North, EGS, and COSMOS fields with LBC*, A&A, 602, 18
- Ashcraft, T. A., et al., 2017, *Ultra-deep Large Binocular Camera U-band Imaging of the GOODS-North Field: Depth vs. Resolution*, PASP, 130, 988
- Bagley, M. B., et al., 2017, *High Space Density of Luminous Lyman Alpha Emitters at  $z \sim 6$* , ApJ, 837, 11
- Zanella, A., et al. 2016, *The Role of Quenching Time in the Evolution of the Mass-Size relation of Passive Galaxies from the WISP Survey*, ApJ, 824, 68
- Mehta, V., et al., 2015, *Predicting the redshift 2 H $\alpha$  luminosity function using [OIII] emission line galaxies*, ApJ, 811, 141
- Kaviraj, S., et al., 2014, *The role of major mergers in the size growth of intermediate-mass spheroids*, MNRAS, 443, 1861
- Simmons, B., et al., 2014, *Galaxy Zoo: CANDELS Barred Disks and Bar Fractions*, MNRAS, 445, 3466
- Liu, C., et al., 2014, *Maximizing LSST's Scientific Return: Ensuring Participation from Smaller Institutions*, arXiv:1410.2526L
- Huertas-Company, M., et al., 2014, *The role of major mergers in the size growth of intermediate-mass spheroids*, MNRAS, 443, 1861
- Huertas-Company, M., et al., 2014, *Measuring galaxy morphology at  $z > 1$ . I - calibration of automated proxies*, arXiv:1406.11751

- Bedregal, A.G. et al., 2014, *HST/WFC3 Near-Infrared Spectroscopy of Quenched Galaxies at  $z \sim 1.5$  from the WISP Survey: Stellar Population Properties*, ApJ, 778, 126
- Kaviraj, S. et al., 2013, *The Insignificance of Major Mergers in Driving Star Formation at  $z \sim 2$*  MNRAS, 429, L40
- Hathi, N.P. et al., 2012, *Stellar Populations of Lyman Break Galaxies at  $z=1-3$  in the HST/WFC3 Early Release Science Observations*, ApJ, 765, 88
- Windhorst, R.A. et al., 2011, *The Hubble Space Telescope Wide Field Camera 3 Early Release Science data: Panchromatic Faint Object Counts from 0.2-2 Microns to  $AB \sim 26-27$  mag*, ApJ, 193, 21
- Hathi, N.P. et al., 2011, *UV-dropout Galaxies in the GOODS-South Field from WFC3 Early Release Science Observations*, ApJ, 720, 1708
- Ryan, R. E., Jr. et al., 2012, *The Size Evolution of Passive Galaxies: Observations from the Wide Field Camera 3 Early Release Science Program*, ApJ, 749, 1, #53

CONFERENCE  
ABSTRACTS

50+ posters and presentations; omitted for brevity