

# Marc A. Rafelski

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## RESEARCH INTERESTS

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Galaxy formation and evolution, absorption line systems, chemical enrichment and physics of the Intergalactic and Circumgalactic medium, galaxy gas accretion, star formation

## EDUCATION

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**Ph.D. in Physics**, The University of California, San Diego June 2011  
Advisor: Prof. Arthur Wolfe

**Masters of Science in Astronomy**, The University of California, Los Angeles June 2006  
Advisor: Prof. Andrea Ghez

**Bachelor of Science in Physics and Astronomy**, The University of Arizona May 2004  
*Magna Cum Laude* and Honors, Advisor: Prof. Dennis Zaritsky

## WORK EXPERIENCE

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**Associate Research Scientist**, Johns Hopkins University since 2017

**Support Scientist**, Space Telescope Science Institute, Baltimore, MD since 2016

**Postdoctoral Fellow**, NASA Goddard Space Flight Center, Greenbelt, MD 2014-2016  
NASA Postdoctoral Program Fellow, Advisor: Jonathan P. Gardner

**Postdoctoral researcher**, California Institute of Technology, Pasadena, CA 2011-2014  
Infrared Processing and Analysis Center, Advisor: Harry Teplitz

**Graduate student researcher**, University of California, San Diego 2006-2011  
Advisor: Prof. Arthur Wolfe

**Graduate student researcher**, University of California, Los Angeles 2004-2006  
Advisor: Prof. Andrea Ghez

**Undergraduate student researcher**, University of Arizona 2002-2004  
Advisor: Prof. Dennis Zaritsky

**Summer student researcher**, Rutgers University 2004  
Advisor: Prof. Jack. Hughes

**Science Undergraduate Laboratory Internship (SULI)** 2003  
Lawrence Berkeley National Laboratory, Advisor: Dr. Greg Aldering

**Undergraduate Research Fellowship (ERULF):** 2001  
Brookhaven National Laboratory, Advisor: Prof. Wit Busza

## COMPUTER EXPERIENCE

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**Programming Languages:** IDL, Python  
**Data Reduction & Analysis:** XIDL, SExtractor, BPZ, EAZY, DrizzlePac

## GRANTS AND FUNDING

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**Total external research funding: \$739,265 as PI** (and another >\$250,000 in fellowships not listed). In addition, brought in over \$4 million as a Co-I on other grants. Titles listed in next section.

Grant	Year	Involvement	Value
HST GO, Mid-Cycle 25 (15416)	2018-2021	PI	\$66,634
HST GO, Cycle 25 (15100)	2018-2021	Admin PI, science Co-I	\$113,834
HST GO, Cycle 25 (15283)	2018-2021	Admin PI, science Co-I	\$43,675
HST GO, Cycle 25 (15163)	2018-2021	funding PI, science Co-I	\$32,507
HST GO, Cycle 25 (15186)	2018-2021	funding PI, science Co-I	\$38,500
HST AR, Cycle 24 (14580)	2017-2020	PI	\$181,011
NASA Keck 2016B & 2017A	2016-2019	PI	\$12,400
NASA Keck 2016B	2016-2018	PI	\$15,000
HST GO, Cycle 23 (14209)	2016-1019	funding PI, science Co-I	\$15,072
HST GO, Cycle 23 (14178)	2016-1019	funding PI, science Co-I	\$89,303
HST GO, Cycle 23 (14127)	2016-1019	funding PI, science Co-I	\$87,566
HST GO, Cycle 21 (13309)	2014-1017	funding PI, science Co-I	\$12,429
HST GO, Cycle 21 (13389)	2014-1017	funding PI, science Co-I	\$35,927
Total			\$739,265

## SUCCESSFUL TELESCOPE PROPOSALS AND GRANTS

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### James Webb Space Telescope

**Collaborator** DD-ERS (1345) The Cosmic Evolution Early Release Science (CEERS) Survey

### Hubble Space Telescope

**PI** GO (15416) Identifying DLA Host Galaxies: The First Deep Ultraviolet Imaging of a high NHI Damped Lyman-alpha System (~**\$66,634**, 2018 mid-cycle 25)

**Admin PI** GO (15100) Mapping the escaping ionizing flux of Lyman continuum galaxies (**\$113,834**; 2017 Cycle 25)

**Admin PI** GO (15283) Witnessing the assembly of galaxies in an extended gas-rich structure at  $z \sim 3.25$  (**\$43,675**; 2017 Cycle 25)

**Co-I** GO (15163) COS Ultraviolet Baryon Survey (CUBS) (**\$32,507**; 2017 Cycle 25)

**Co-I** GO (15186) Enabling HST UV Exploration of the Low Surface Brightness Universe: A Pilot Study with the WFC3 X Filter Set (**\$38,500**; 2017 Cycle 25)

**PI** AR (14580) The Role of Galaxy Morphology in the Mass-Metallicity-SFR Relation (**\$181,011**; 2016 Cycle 24)

**Co-I** GO (14127) First Measurement of the Small Scale Structure of Circumgalactic Gas via Grism Spectra of Close Quasar Pairs (**\$87,566**; 2015 Cycle 23)

**Co-I** GO (14209) The Final UV Frontier: Legacy Near-UV Imaging of the Frontier Fields (**\$15,072**; 2015 Cycle 23)

**Co-I** GO/PAR (14178) WFC3 Infrared Spectroscopic Parallel Survey: The WISP Deep Fields (**\$89,303**; 2015 Cycle 23)

- Co-I SNAP (13309) UV Snapshot of Low-redshift Massive Star-forming Galaxies: Searching for the Analogs of High-redshift Clumpy Galaxies (**\$12,429**; 2013 Cycle 21)
- Co-I GO (13389) The Ultraviolet Frontier: Completing the Census of Star Formation at Its Peak Epoch (**\$35,927**; 2015 Cycle 21)
- Co-I GO/PAR (12568,12902,13352,13517) WFC3 Infrared Spectroscopic Parallel Survey WISP: A Survey of Star Formation Across Cosmic Time (2011-2014 Cycle 19-22)
- Co-I AR (12821) Probing the Lyman continuum in sub-M\* galaxies at z~1 (2012; Cycle 22)
- Co-I GO (12534) Panchromatic Hubble Ultra Deep Field: Ultraviolet Coverage (2011; C21)
- Co-I AR (12645) H I Selected Survey for Damped Lyman alpha systems with z < 1 (2011; C19)
- Co-I AR (10656) An HST/NICMOS Study of our Galaxy's Central Supermassive Black Hole (2006; Cycle 14)

### Spitzer Space Telescope

- Co-I DDT (13207) Low Mass AGN: Combining IRAC With Near-IR Grism Spectroscopy (2017)
- Co-I GO (12093) Measuring Low Mass Galaxies In The WFC3 Infrared Spectroscopic Parallels Survey (2015)
- Co-I GO (10041) Mass Assembly In The WFC3 Infrared Spectroscopic Parallels Survey (2013)
- Co-I GO (90230) Low Mass Galaxy Evolution In The WFC3 Infrared Spectroscopic Parallels Survey (2012)

### Ground Based Telescope Proposals

- PI W.M. Keck Telescopes (2 NASA-Keck proposals, 1 night 2016B 2 nights 2017A, **\$27,400**)
- PI ESO Very Large Telescope (VLT; 2 proposals, 32 hours, P98A (2016) & P100A (2017))
- PI Palomar 200 inch (4 proposals, 17 nights 2011-2013)
- Co-I W.M. Keck Telescopes (23 UC-Keck proposals with Arthur Wolfe, 40 nights 2006-2012)
- Co-I Palomar 200 inch (1 proposals, 4 nights, 2013)
- Co-I Magellan Baade Telescope (1 proposal, 4 nights, 2012)
- Co-I ESO Very Large Telescope (VLT; 4 proposals, 56.5 hours, 2014-2017)
- Co-I ALMA (3 proposals: 2016.1.00569.S, 2015.1.01564.S, 2013.1.00526.S)

### OBSERVING EXPERIENCE

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<b>W.M. Keck Observatory:</b> 10m telescopes	Total: 43 nights
• HIRES: High Resolution Echelle Spectrometer	16 nights
• ESI: Echelle Spectrograph and Imager	16 nights
• LRIS: Low Resolution Imaging Spectrometer	5 nights
• NIRC: Near Infrared Camera	3 nights
• NIRC2: Near Infrared Camera 2	2 nights
• OSIRIS: OH Suppressing Infrared Integral-field Spectrograph	1 night
<b>Palomar Observatory:</b> 200-inch Telescope	Total: 17 nights
• LFC: Large Format Camera	12 nights
• DBSP: The Double Spectrograph	5 nights
<b>Magellan Observatory:</b> Baade & Clay 6.5m telescopes	Total: 6 nights
• FIRE: Folded-port InfraRed Echellette	2 nights
• IMACS: Inamori-Magellan Areal Camera & Spectrograph	1 night
• FourSTAR: Infrared Camera	1 night

- LDSS3: Low Dispersion Survey Spectrograph 3 2 nights
- WIYN Observatory:** 3.5m telescope (Mini-Mosaic Imager) Total: 3 nights

## AWARDS AND HONORS

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- Lindau Nobel Laureate meeting participant 2016
- Distinguished Fellow 2016
  - Kosciuszko Foundation Collegium of Eminent Scientists
- NASA Postdoctoral Program Fellowship 2014-2016
- Certificate in Teaching Innovative Laboratory Experiences 2010
  - Institute for Scientist & Engineer Educators, UC Santa Cruz
- Summer Graduate Teaching Fellowship, University of California, San Diego 2010
- UCLA Department of Physics & Astronomy Fellowship 2004-2005
- Excellence in Undergraduate Research Award in Physics 2004
  - University of Arizona, College of Science
- Baird Scholarship, Baird Foundation, University of Arizona 2000-2004
- Weaver Award for Undergraduate Research, University of Arizona, Physics 2003
- Galileo Circle Scholarship, University of Arizona, College of Science 2003-2004
- Vesto M. Slipher Scholarship, University of Arizona, Physics 2003
- Phi Beta Kappa initiated 2002
- Glenn C. Purviance Scholarship, University of Arizona, Physics 2002
- George Gregson-Science Scholarship, University of Arizona, Physics 2001
- Vomaska Scholarship, University of Arizona, Physics 2000
- Academy of Achievement attendee 2000

## TEACHING AND MENTORING EXPERIENCE

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### Mentor for Research Instrument Analysts (RIAs):

- Ben Sunnquist, Space Telescope Science Institute 2017-present
- James White, Space Telescope Science Institute 2016-2017

### Mentor for Undergraduate Student in Astronomy Research:

- Anthony Pahl (Summer at NASA Goddard, 9 months remote) 2016-2017

### UCSD Instructor of Physics: University of California, San Diego

- Instructor for Physics 1A: Introductory Mechanics. 2010

### Guest Lecturer: Maui Community College

- Astronomy instructor and team leader for the Po'okela short course. Taught inquiry-based activities for 1 week. 2008

### Teaching Assistant: University of California, San Diego

- Introductory astronomy lecture (Physics 5 and Physics 7) 2006-2007
- Physics laboratory on waves and circuits (Physics 2CL) 2006

### Guest Lecturer: University of California, Santa Cruz

- Astronomy instructor for the CfAO Mainland Short Course. Taught inquiry-based activities for 1 week. 2007

<b>Guest Lecturer:</b> Hawaii Island observatories	2006
<ul style="list-style-type: none"> <li>• Astronomy instructor for the CfAO Akamai Observatory Short Course for Hawaii Island. Taught inquiry-based activities for 1 week.</li> </ul>	
<b>Teaching Assistant:</b> University of California, Los Angeles	2004
<ul style="list-style-type: none"> <li>• Astronomy lab for non-majors</li> </ul>	
<b>Teaching Assistant:</b> University of Arizona	2001-2004
<ul style="list-style-type: none"> <li>• Mechanics lab for non-majors</li> <li>• Electricity, magnetism, and optics for non-majors</li> </ul>	2001-2003 2004

## PROFESSIONAL ACTIVITIES

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<b>Referee for Scientific Journals</b>	2011-2017
<ul style="list-style-type: none"> <li>• Astrophysical Journal, Astronomy and Astrophysics, Monthly Notices of the Royal Astronomical Society</li> </ul>	
<b>Review Panels and Telescope Allocation Committees</b>	2014-2018
<ul style="list-style-type: none"> <li>• NASA Astrophysics Data Analysis Program (ADAP) Panel</li> <li>• Hubble Space Telescope Panel</li> <li>• Spitzer Space Telescope Panel</li> <li>• CFHT Taiwan TAC</li> <li>• NASA Earth and Space Science Fellowship (NESSF)</li> <li>• Space Astronomy Summer Program (SASP at STScI)</li> </ul>	
<b>Committee work</b>	
<ul style="list-style-type: none"> <li>• Wrote summary on high redshift galaxy surveys with a UV-optical Space telescope (LUVOIR) for the Cosmic Origins Program Analysis Group (COPAG) published by PASP</li> </ul>	August 2015
<b>Press Releases</b>	
<ul style="list-style-type: none"> <li>• ALMA Observes Galaxies Embedded in Super-Halos <a href="http://www.almaobservatory.org/en/press-room/press-releases/1148-alma-observes-galaxies-embedded-in-super-halos">http://www.almaobservatory.org/en/press-room/press-releases/1148-alma-observes-galaxies-embedded-in-super-halos</a></li> <li>• Hubble Reveals Stellar Fireworks in 'Skyrocket' Galaxy <a href="http://hubblesite.org/newscenter/archive/releases/2016/23/">http://hubblesite.org/newscenter/archive/releases/2016/23/</a></li> <li>• Hubble Team Unveils Most Colorful View of Universe Captured by Space Telescope <a href="http://hubblesite.org/newscenter/archive/releases/2014/27">http://hubblesite.org/newscenter/archive/releases/2014/27</a></li> </ul>	March 2017 June 2016 June 2014
<b>Local Leadership</b>	
<ul style="list-style-type: none"> <li>• Front End Lead for Cosmic Origins Spectrograph (COS)</li> <li>• COS data handbook editor</li> <li>• Calibration Lead for the 4<sup>th</sup> lifetime position of the COS</li> <li>• Deputy User Support Lead for the COS team</li> <li>• Founded and ran a weekly lunch for Support Scientists at STScI</li> <li>• Ran a weekly discussion group on galaxy related science at Goddard</li> <li>• Founded and ran a weekly department social hour at UCSD</li> </ul>	2018-present 2017-present 2017-present 2017-present 2017 2014-2016 2006-2011

## Professional Memberships

- American Astronomical Society (AAS) 2009-present
- International Astronomical Union (IAU) 2015-present

## PROFESSIONAL DEVELOPMENT AS EDUCATOR

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### Active teaching methods in Astronomy Survey Courses 2009-2011

- NASA Center for Astronomy Education (CAE) workshops 2009
- AAS meeting #213, Long Beach, California 2011
- AAS meeting #217, Seattle, Washington 2011

### Professional Development Program (PDP): 2006-2008

- NSF Center for Adaptive Optics, Maui, Hawaii 2008
- Design team leader for stellar population inquiry activity 2007
- Design team leader for galaxy evolution inquiry activity 2006
- Team member for re-design of optics inquiry activity 2006

## OUTREACH

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**PBS KIDS Ready Jet Go!**: On TV episode with Amy Mainzer on Telescopes 2016

**Explore@NASAGoddard open house volunteer**: Goddard Space Flight Center 2015

**Reach For Tomorrow volunteer**: University of California, San Diego 2008-2011

- Outreach volunteer for disadvantaged K12 students (1 day/year)

**Tech Trek volunteer**: University of California, San Diego 2008-2010

- Outreach volunteer for female K12 students (1 day/year)

**Po'okela short course**: Maui Community College, HI 2008

- Outreach team leader for native Hawaiian students (1 week + prep)

**CfAO Mainland short course**: University of California Santa Cruz 2007

- Outreach volunteer for disadvantaged students (1 week + prep)

**CfAO Akamai Observatory short course**: Waimea, Hawaii 2006

- Outreach volunteer for native Hawaiian students (1 week + prep)

**Planetarium show volunteer**: University of California, Los Angeles 2004-2006

**Science Ambassador**: University of Arizona 2003-2004

## SELECTED REFEREED PUBLICATIONS (1<sup>st</sup> and 2<sup>nd</sup> author)

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59 refereed journal papers published or accepted to date, garnering 2321+ citations (459+ of which are for 8 first author papers), leading to an H-index of 28.

Guo, Y., **Rafelski, Marc**, Bell, Eric. F., Conselice, C.J., Avishai, D., Faber, S.M., Giavalisco, M., Koekemoer, A.M., Koo, D.C., Lu, Y., Mandelker, N., Primack, J.R., Ceverino, D., De Mello, D.F., Ferguson, H.C., Hathi, N., Kocevski, D., Lucas, R., Perez-Gonzalez, P.G., Ravindranath, S.,

- Soto, E., Straughn, A., Wang, W. *Clumpy Galaxies in CANDELS II: Physical properties of UV-Bright Clumps at  $0.5 < z < 3$* , 2018 *Astrophysical Journal*, 853, 108
- Guo, Y., **Rafelski, Marc**, Faber, S. M., Koo, D.C., Krumholz, M.R., Trump, J.R., Willner, S. P., Amorín, R., Barro, G., Bell, E.F., Gardner, J.P., Gawiser, E., Hathi, N.P., Koekemoer, A.M., Pacifici, C., Pérez-González, P.G., Ravindranath, S., Reddy, N., Teplitz, H.I., Yesuf, H., *The Bursty Star Formation Histories of Low-mass Galaxies at  $0.4 < z < 1$  Revealed by Star Formation Rates Measured from  $H_{\beta}$  and FUV*, 2016 *Astrophysical Journal* 833, 1
- Marc Rafelski**, Gardner, J.P., Fumagalli, M., Neeleman, M., Teplitz, H.I., Grogin, N., Koekemoer, A., Scarlata, C., *The Star Formation Rate Efficiency of Neutral Atomic-dominated Hydrogen Gas in the Outskirts of Star Forming Galaxies from  $z \sim 1-3$* , 2016 *Astrophysical Journal* 825, 87
- Marc Rafelski**, Teplitz, H.I., Gardner, J.P., Coe, D., Bond, N.A., Koekemoer, A., Grogin, N., Kurczynski, P., McGrath, E.J., Bourque, M., Atek, H., Brown, T.M., Coe, D., Colbert, J.W., Codoreanu, A., Ferguson, H.C., Finkelstein, S.L., Gawiser, E., Giavalisco, M., Gronwall, C., Hanish, D.J., Lee, K., Mehta, V., de Mello, D.F., Ravindranath, S., Ryan, R.E., Scarlata, C., Siana, B.D., Soto, E., Voyer, E.N., *UVUDF: Ultraviolet Through Near-infrared Catalog and Photometric Redshifts of Galaxies in the Hubble Ultra Deep Field*, 2015, *Astronomical Journal*, 150, 31
- Marc Rafelski**, Marcel Neeleman, Michele Fumagalli, Arthur Wolfe, Jason X. Prochaska, *The Rapid Decline in Metallicity of Damped Ly-alpha Systems at  $z \sim 5$* , 2014, *Astrophysical Journal Letters*, 782, L29
- Teplitz, H.I., **Rafelski, Marc**, Kurczynski, P., Bond, N.A., Grogin, N., Koekemoer, A., Atek, H., Brown, T.M., Coe, D., Colbert, J.W., Ferguson, H.C., Finkelstein, S.L., Gardner, J.P., Gawiser, E., Giavalisco, M., Gronwall, C., Hanish, D.J., Lee, K., de Mello, D.F., Ravindranath, S., Ryan, R.E., Siana, B.D., Scarlata, C., Soto, E., Voyer, E.N., Wolfe, A.M., *UVUDF: Ultraviolet Imaging of the Hubble Ultradeep Field with Wide-field Camera 3*, 2013, *Astronomical Journal*, 146, 159
- Marc Rafelski**, Arthur M. Wolfe, Jason X. Prochaska, Alexander Mendez, Marcel Neeleman, *Metallicity Evolution of Damped Lyman Alpha Systems out to  $z \sim 5$* , 2012, *Astrophysical Journal*, 755, 89
- Marc Rafelski**, Arthur M. Wolfe, Hsiao-Wen Chen, *Star Formation from DLA Gas in the Outskirts of Lyman Break Galaxies at  $z \sim 3$* , 2011, *Astrophysical Journal*, 736, 48
- Marc Rafelski**, Arthur M. Wolfe, Jeff Cooke, Hsiao-Wen Chen, Taft E. Armandroff, Gregory D. Wirth, *Deep Keck u-band Imaging of the Hubble Ultra Deep Field: A Catalog of  $z \sim 3$  Lyman Break Galaxies*, 2009, *Astrophysical Journal*, 703, 2050
- Marc Rafelski**, Ghez, A. M., Hornstein, S. D., Lu, J. R., Morris, M., *Photometric Stellar Variability in the Galactic Center*, 2007, *Astrophysical Journal*, 659, 1241
- Hughes, John P., **Rafelski, Marc**, Warren, Jessica S., Rakowski, Cara, Slane, Patrick, Burrows, David, Nousek, John, *The Chandra View of the Supernova Remnant 0506-68.0 in the Large Magellanic Cloud*, 2006, *Astrophysical Journal*, 645, L117

Marc Rafelski & Dennis Zaritsky, *The Star Clusters of the Small Magellanic Cloud: Age Distribution*, 2005, *Astronomical Journal*, 129, 2701

#### OTHER REFEREED PUBLICATIONS

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- C.R. da Silveira, B. Barbuy, A. Friaca, M. Zoccali, O.A. Gonzalez, **M. Rafelski**, V. Hill, D. Minniti, A. Renzini, S. Ortolani, *Oxygen and zinc abundances in 417 Galactic bulge red giants*, accepted 2018 *Astronomy & Astrophysics*
- Mantha, K.B., McIntosh, D.H., Brennan, R., Ferguson, H.C., Kodra, D., Newman, J.A., **Rafelski, M.**, Somerville, R.S., Conselice, C.J., Cook, J.S., Hathi, N.P., Koo, D.C., Lotz, J.M., Simmons, B.D., Straughn, A.N., Synder, G.F., Wuyts, S., Bell, E.F., Dekel, A., Kartaltepe, J., Kocevski, D.D., Koekemoer, A.M., Lee, S., Lucas, R.A., Pacifici, C., Peth, M.A., Barro, G., Dahlen, T., Finkelstein, S.L., Fontana, A., Galametz, A., Grogin, N.A., Guo, Y., Mobasher, B., Nayyeri, H., Perez-Gonzalez, P.G., Pforr, J., Santini, P., Stefanon, M., Wiklind, T. *Major Merging History in CANDELS. I. Evolution of the Incidence of Massive Galaxy-Galaxy Pairs from  $z=3$  to  $z\sim 0$* , 2018 *Monthly Notices of the Royal Astronomical Society*, 475, 2
- Fumagalli, M., Mackenzie, R. Trayford, J., Theuns, T. Catalipo, S. Christensen, L., Fynbo, J.P., Moller, P., O'Meara, Prochaska, J.X., **Rafelski, M.**, Shanks, T., *Witnessing galaxy assembly in an extended  $z\approx 3$  structure*, 2017 *Monthly Notices of the Royal Astronomical Society*, 471,3
- Scowen, P.A., Tripp, T., Beasley, M. Ardila, D., Andersson, B-G, Apellániz, J., Barstow, M., Bianchi, L., Calzetti, D., Clampin, M., Evans, C.J., France, K., García, M., Gomez de Castro, A., Harris, W., Hartigan, P., Howk, C., Hutchings, J., Larruquert, J., Lillie, C.F., Matthews, G., McCandliss, S., Polidan, R., Perez, **Rafelski, M.**, Roederer, I.U., Sana, H., Sanders, W.T., Schiminovich, D., Thronson, H., Tumlinson, J., Vallergera, J. Wofford, A., *Finding the UV-Visible Path Forward: Proceedings of the Community Workshop to Plan the Future of UV/Visible Space Astrophysics*, Publications of the Astronomical Society of the Pacific, 2017, 129, 977
- Neeleman, M.; Kanekar, N.; Prochaska, X.J.; **Rafelski, Marc**; Carilli, C.L.; Wolfe, A.M., *[C II] 158 mm emission from the host galaxies of damped Lyman-alpha systems*, 2017, *Science*, 355 (6331), 1285-1288
- Mehta, V.; Scarlata, C.; **Rafelski, Marc**; Gburek, T.; Teplitz, H.I.; Alavi, A.; Boylan-Kolchin, M.; Finkelstein, S.; Gardner, J.P.; Grogin, N.; Koekemoer, A.; Kurczynski, P.; Siana, B.; Codoreanu, A.; de Mello, D.F.; Lee, K.S.; Soto, E., *UVUDF: UV Luminosity Functions at the cosmic high-noon*, *Astrophysical Journal* 2017, 838, 29
- Soto, E.; de Mello, D.F.; **Rafelski, Marc**; Gardner, J.P.; Teplitz, H.I.; Koekemoer, A.M.; Ravindranath, S.; Grogin, N.A.; Scarlata, C.; Kurczynski, P.; Gawiser, E., *Physical Properties of Sub-galactic Clumps at  $0.5 < z < 1.5$  in the UVUDF*, 2017, *Astrophysical Journal*, 837, 6
- Bagley, M.B., Scarlata, C., Henry, A., **Marc Rafelski**, Malkan, M., Teplitz, H.Y., Dai, S., Baronchelli, I., Colbert, J., Rutkowski, M., Mehta, V., Dressler, A., McCarthy, P., Bunker, A., Atek, H. Garel, T., Martin, C.L., Hathi, N., Siana, B., *A High Space Density of Luminous Lyman Alpha Emitters at  $z\sim 6.5$* , 2017, *Astrophysical Journal*, 837, 11



- Pacifici, C.; Kassin, S.A.; Weiner, B.J.; Holden, B.; Gardner, J.P.; Faber, S.M.; Ferguson, H.C.; Koo, D.C.; Primack, J.R.; Bell, E.F.; Dekel, A.; Gawiser, E.; Giavalisco, M.; **Rafelski, Marc**; Simons, C.; Barro, G.; Croton, D.J.; Dave, R.; Fontana, A.; Grogin, N.A.; Koekemoer, A.M.; Lee, S.K.; Salmon, B.; Somerville, R.; Behroozi, P., *The evolution of star formation histories of quiescent galaxies*, 2016 *Astrophysical Journal*, 832, 79
- Vicki L. Toy; Antonino Cucchiara; Sylvain Veilleux; Michele Fumagalli; **Marc Rafelski**; Alireza Rahmati; S. Bradley Cenko; John I. Capone; Dheeraj R. Pasham; *Exploring Damped Lyman-alpha System Host Galaxies Using Gamma-Ray Bursts*, 2016 *Astrophysical Journal* 832, 2
- Alavi, Anahita; Siana, Brian; Richard, Johan; **Rafelski, Marc**; Jauzac, Mathilde; Limousin, Marceau; Freeman, William R.; Scarlata, Claudia; Robertson, Brant; Stark, Daniel P.; Teplitz, Harry I., *The Evolution Of The Faint End Of The UV Luminosity Function During The Peak Epoch Of Star Formation ( $1 < z < 3$ )*, 2016 *Astrophysical Journal* 832, 56
- Kaveh Vasei, Brian Siana, Alice E. Shapley, Anna M. Quider, Anahita Alavi, **Marc Rafelski**, Charles C. Steidel, Max Pettini, Geraint F. Lewis, *The Lyman Continuum Escape Fraction of The Cosmic Horseshoe: A Test of Indirect Estimates*, 2016 *Astrophysical Journal* 831, 38
- Elmegreen, Debra Meloy; Elmegreen, Bruce G.; Sanchez Almeida, Jorge; Munoz-Tunon, Casiana; Mendez-Abreu, Jairo; Gallagher, John S.; **Rafelski, Marc**; Filho, Mercedes; Ceverino, Daniel, *Hubble Space Telescope Observations of Accretion-Induced Star Formation in the Tadpole Galaxy Kiso 5639*, 2016 *Astrophysical Journal* 825, 2
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### NON-REFEREED PUBLICATIONS

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- Fox, A., James, B., Roman-Duval, J., **Rafelski, M.**, Sonnentrucker, P., *The Spectral Resolution of the COS FUV channel at Lifetime Position 4*, Instrument Science Report COS 2018-7, STScI
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## TALKS AND POSTERS

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32 oral presentations and 14 poster presentations at a range of universities and institutes across the United States, Europe, Australia, and Asia. Does not include local presentations.

- American Astronomical Society Meeting #231:** Washington DC
- **Talk:** *The Ultraviolet Hubble Ultra Deep Field* 01/2018
  - **Poster:** COS2025: Extending the Lifetime of the FUV channel of the Cosmic Origins Spectrograph to 2025
- What Matters Around Galaxies:** Durham University, UK 06/2017
- **Talk:** *Evolution of the hydrogen mass density, metallicity, and star-formation rate in DLAs associated with galaxies*
- Research Seminar:** Durham University, UK 06/2017
- **Talk:** *The physical properties of HI-rich galaxies across 10 billion years*
- STScI Spring Symposium: Lifecycle of Metals Throughout the Universe:** 04/2017  
**Celebrating 50 years of UV Astronomy:** STScI, Baltimore, MD
- **Talk:** *UVUDF: Ultraviolet Coverage of the Hubble Ultradeep Field*
  - **Poster:** The Metal Enrichment and Star Formation of HI gas (DLAs) Over Cosmic Time
- What Shapes Galaxies:** STScI, Baltimore, MD 04/2016
- **Poster:** *The Star Formation Rate Efficiency of Atomic-dominated Hydrogen Gas from  $z \sim 1$  to  $z \sim 3$*
- Outskirts of Galaxies:** Toledo, Spain 03/2016
- **Talk:** *SFR Efficiency of Atomic-dominated Hydrogen Gas in the Outskirts of Star Forming Galaxies from  $z \sim 1$  to  $z \sim 3$*
- American Astronomical Society Meeting #227:** Florida
- **Talk:** *The Star Formation Rate Efficiency of Atomic-dominated Hydrogen Gas from  $z \sim 1$  to  $z \sim 3$*  01/2016
- Census, Evolution, Physics (Galaxies):** Yale University, New Haven, CT 11/2015
- **Invited Talk:** *Overview of the WFC3 Infrared Spectroscopic Parallel Survey (WISPs)*
- CAS Research Seminar:** Johns Hopkins University 11/2015
- **Invited Talk:** *On the Non-evolution of the Star Formation Rate Efficiency of HI Rich Galaxies from  $z \sim 1-3$*
- CANDELS Team Meeting:** University of California, Santa Cruz 07/2015
- **Talk:** *UV Data and Science*
- Thirty Meter Telescope Science Forum:** AAAS, Washington DC 06/2015
- **Talk:** *Uncovering the Origin of the Rapid Decline in Metallicity of Hydrogen-Rich Galaxies at  $z \sim 5$*
- Finding the UV-Visible Path Forward:** Goddard, Greenbelt, MD 06/2015
- **Invited talk:** *Motivations for a future UV-visible telescope:*

*High-redshift Galaxy and Deep-field Studies*

- IGM@50: Is the Intergalactic Medium Driving Star Formation:** Sarteano, Italy 06/2015  
• **Invited talk:** *Evolution in the Star Formation Rate Efficiency of Damped Lyman-alpha Systems*
- Astrophysics Colloquium:** Durham University, UK 06/2015  
• **Invited Talk:** *Evolution of the Star Formation Properties and Chemical Composition of Hydrogen Rich Galaxies in the Early Universe*
- Hubble 2020:** Space Telescope Science Institute 04/2015  
• **Poster:** *Ultraviolet Through Near-infrared HST Imaging and Photometric Redshifts of Galaxies in the Hubble Ultra Deep Field*
- Physics Colloquium:** The Catholic University of America, Washington D.C. 02/2015  
• **Invited Talk:** *Chemical Composition and Star Formation Properties of Hydrogen Rich Galaxies in the Early Universe*
- Galaxies in Absorption:** Paris, France 09/2014  
• **Talk:** *The Metal Enrichment and Star Formation of DLAs Over Cosmic Time*
- The Role of Hydrogen in the Evolution of Galaxies:** Kuching, Malaysia 09/2014  
• **Talk:** *The Metallicity Evolution Neutral Atomic Hydrogen gas out to High Redshift*
- Intergalactic Matters:** Heidelberg, Germany 06/2014  
• **Poster:** *The Rapid Decline in Metallicity of Damped Lyman-alpha systems at  $z \sim 5$*
- Astrophysics Colloquium:** Melbourne University of Technology 05/2014  
• **Invited Talk:** *Metallicity Evolution and Star Formation Properties of Damped Ly-alpha Systems*
- The Near-Field Deep-Field Connection:** University of California, Irvine 02/2014  
• **Poster:** *The Rapid Decline in Metallicity of Damped Lyman-alpha systems at  $z \sim 5$*   
• **Discussion Talk:** *CGM of the Milky Way and Beyond*
- CAS Research Seminar:** Johns Hopkins University 12/2013  
• **Invited Talk:** *Star Formation Properties and Metallicity Evolution of HI Rich Galaxies at High Redshift*
- Astronomy Seminar:** University of California, Riverside 11/2013  
• **Invited Talk:** *Star Formation Properties and Metallicity Evolution of HI Rich Galaxies at High Redshift*
- Astrophysics Colloquium:** University of Minnesota 11/2013  
• **Invited Talk:** *Star Formation Properties and Metallicity Evolution of HI Rich Galaxies at High Redshift*

- CANDELS Team Meeting:** University of Kentucky 8/2013
- **Talk:** Data Challenges for CANDELS UV Data
  - **Talk:** Overview of CANDELS UV Data in GOODS North
- Intergalactic Interactions:** Royal Observatory, Edinburgh, Scotland 6/2013
- **Talk:** *On the possible break in the metallicity evolution of DLAs at  $z \sim 5$*
- CANDELS Team Meeting:** University of California, Santa Cruz 9/2012
- **Talk:** *Data Reduction Challenges for Binned UV Data*
- Keck Science Meeting:** University of California, San Diego 9/2012
- **Talk:** *Metallicity Evolution of Damped Lyman-alpha Systems out to  $z \sim 5$*
- Galactic Scale Star Formation:** Heidelberg, Germany 8/2012
- **Talk:** *Measuring the evolution of the star formation rate efficiency from  $z \sim 1-4$*
- UV Astronomy: HST and Beyond:** Kaua'i, Hawai'i 6/2012
- **Poster:** *Ultraviolet Observations of the Hubble Ultra Deep Field*
- American Astronomical Society Meeting #220:** Anchorage, AK 6/2012
- **Talk:** *Ultraviolet Observations of the Hubble Ultra Deep Field*
- The 2012 Greater IPAC Science Symposium:** 3/2012  
California Institute of Technology
- **Talk:** *Star Formation from DLA Gas in the Outskirts of Lyman Break Galaxies*
- Keck Science Meeting:** California Institute of Technology 9/2011
- **Talk:** *Metallicity Evolution of Damped Ly-alpha Systems out to  $z \sim 5$*
- A Quarter Century of DLAs: Celebrating the career of Arthur Wolfe** 7/2011  
Ringberg Castle, Germany
- **Invited Talk:** *Star Formation from DLA Gas in the Outskirts of Lyman Break Galaxies at  $z \sim 3$*
- Star Formation in Galaxies - the Herschel Era:** 6/2011  
Ringberg Castle, Germany
- **Invited Talk:** *Star Formation from DLA Gas in the Outskirts of Lyman Break Galaxies at  $z \sim 3$*
- Center for Galaxy Evolution Inaugural Workshop:** Irvine, CA 3/2011
- **Poster:** *Star Formation from DLA Gas in the Outskirts of Lyman Break Galaxies at  $z \sim 3$*
- American Astronomical Society Meeting #217:** Seattle, WA 1/2011
- **Talk:** *Low Surface Brightness Emission in the Outskirts of LBGs at  $z \sim 3$ : Possible Star Formation in Atomic-dominated DLA Gas*
- Learning from Inquiry in Practice: The PDP Community Interchange** 1/2010



- Santa Cruz, CA
- **Poster:** *Stellar Populations Inquiry*
- Keck Science Meeting:** California Institute of Technology 9/2009
- **Poster:** *Search for Spatially Extended Star Formation Around Lyman Break Galaxies*
- SFR@50: Filling the Cosmos with Stars:** Sarteano, Italy 7/2009
- **Invited Talk:** *Search for Spatially Extended Star Formation around Lyman Break Galaxies in the Hubble Ultra Deep Field*
- American Astronomical Society Meeting #213, Long Beach, CA** 1/2009
- **Poster:** *Lyman Break Galaxies in the Hubble Ultra Deep Field through Deep U-Band Imaging*
- Keck Science Meeting:** University of California, Santa Cruz 9/2008
- **Poster:** *Ultra Deep Keck u-band Imaging of the Hubble Ultra Deep Field*
- Keck Science Meeting:** University of California, Irvine 9/2006
- **Poster:** *Photometric Stellar Variability in the Galactic Center*
- From the Center of the Milky Way to Nearby Low-Luminosity Galactic Nuclei,** Bad Honnef, Germany 4/2006
- **Poster:** *Photometric Stellar Variability in the Galactic Center*