

## Dr. Marika McCarthy

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EDUCATION	PhD, Physics	July 2021
	Montana State University, Bozeman, MT	
	Dissertation: <i>Examination of Coronal Loops Between Quiescent Active Regions</i> Advisor: Dana Longcope	
	MS, Physics	December 2018
	Montana State University, Bozeman, MT	
	BA, <i>Magna Cum Laude</i> , Physics	May 2016
	Willamette University, Salem, OR	
	Senior thesis: <i>Analysis of Phagosome Trafficking Data to Examine the Role of Myosin VI in Phagocytosis</i> Advisor: David Altman	
RESEARCH POSITIONS	<i>Research Scientist</i>	October 2021 - January 2022
	Lockheed Martin Solar and Astrophysics Laboratory & Bay Area Environmental Research Institute, Palo Alto, CA	
	<i>Graduate Research Assistant</i>	May 2017 - August 2021
	Montana State University, Physics Department, Bozeman, MT	
	<i>Undergraduate Researcher</i>	March 2015 - May 2016
	Willamette University, Physics Department, Salem, OR	
	<i>Research Experience for Undergraduates (REU) Student</i>	Summer 2015
	Montana State University, Solar Physics Group, Bozeman, MT	
	<i>REU Student</i>	Summer 2014
	The College of William & Mary, Physics Department, Williamsburg, VA	
PEER-REVIEWED PUBLICATIONS	Multispacecraft observations of coronal loops to verify a force-free field reconstruction and infer loop cross sections, <b>M.I. McCarthy</b> , D.W. Longcope, and A.V. Malanushenko, 2021, ApJ, 913, 56	
	Localized reconnection heating inferred from the three-dimensional locations of bright active region coronal loops, D.W. Longcope, <b>M. McCarthy</b> , and A.V. Malanushenko, 2020, ApJ, 901, 147.	
	Measuring and modeling the rate of separator reconnection between an emerging and existing active region, <b>M.I. McCarthy</b> , D.W. Longcope, A.V. Malanushenko, and D.E. McKenzie, 2019, ApJ, 887, 2.	
	Evidence for Downflows in the Narrow Plasma Sheet of 2017 September 10 and Their Significance for Flare Reconnection, D.W. Longcope, J.E. Unverferth, C. Klein, <b>M.</b>	

McCarthy, and E.R. Priest, 2018, ApJ, 868, 148.

<b>HONORS AND AWARDS</b>	Scholarship Excellence Award (Montana State Graduate School)	2021
	Studentship Award (AAS Solar Physics Division )	2019
	Phi Beta Kappa Honor Society (Willamette University)	2016
	William B. Webber Scholarship (WU)	2015
	Academic Leader Award Scholarship (WU)	2012
	Jason Lee Award Scholarship (WU)	2012

<b>POSTERS AND PRESENTATIONS</b>	<i>Examination of Coronal Loops Between Quiescent Active Regions</i>	
	• Colloquium (Invited), High Altitude Observatory, July 2021. Oral Presentation (Virtual).	
	• PhD Defense, July 2021.	

*Temperature evolution of coronal flux observed through multiple extreme ultraviolet wavelengths*

- AAS 238/SPD 2021. June 2021. iPoster Plus, virtual meeting.

*Multi-spacecraft observation of coronal loops to verify a force-free field reconstruction and infer loop cross-sections*

- Journal Club at NASA MSFC (Invited). September 2021. Oral Presentation (Virtual).
- AAS 238/SPD 2021. June 2021. Oral Presentation (Virtual).
- Colloquium (Invited), Naval Research Laboratory, April 2021. Oral Presentation (Virtual).
- RelAstro Seminar, Montana State University. Spring 2021, Oral Presentation (Virtual).
- SPD51. August 2020. iPoster, virtual meeting.

*Examination of Separator Reconnection Rates in a Series of Adjacent Emerging/Existing Active Region Pairs*

- Fall AGU meeting, December 2019. Poster, San Francisco, CA.

*Reconnected flux between solar active regions*

- RelAstro Seminar, Montana State University. Fall 2019, Oral Presentation.

*Measuring and modeling the rate of separator reconnection between an emerging and existing active region*

- AAS 234/SPD 2019. Oral Presentation, St. Louis MO.

*Coronal magnetic reconnection between an emerging and an existing active region*

- RelAstro Seminar, Montana State University. Fall 2018, Oral Presentation.

*Measuring separator reconnection between emerging and existing active regions using extreme ultraviolet imaging observations*

- TESS 2018. Poster, Leesburg VA.

*Measuring separator reconnection between emerging and existing active regions using extreme ultraviolet imaging observations*

- RelAstro Seminar, Montana State University. Spring 2018, Oral Presentation.

*Analysis of Phagosome Trafficking Data to Examine the Role of Myosin VI in Phagocytosis*

- Willamette University's *Student Scholarship Recognition Day*, April 2016, Oral Presentation, Salem OR
- Joint Linfield College-Willamette University Thesis Presentations, April 2016, Oral Presentation, McMinnville OR
- Thesis Proposal Presentation: PHYS-396W Advanced Techniques in Experimental Physics, May 2015, Oral Presentation

*Measurements of Magnetic Reconnection to/from Emerging Active Regions*

- Montana State University Solar Physics REU Final presentations, August 2015, Oral presentation.
- Montana State University Solar Physics REU Midterm presentations, July 2015, Oral presentation.

*Track Reconstruction for Aluminum Scattering in the Qweak Experiment*

- Conference Experience for Undergraduates at the 2014 Joint Meeting of the American Physics Society Division of Nuclear Physics and the Physical Society of Japan, October 2014, Poster
- College of William & Mary REU Poster Session, August 2014, Poster

**TEACHING  
EXPERIENCE**

*Graduate Teaching Assistant* August 2016 - May 2017  
Montana State University, Physics Department, Bozeman, MT

*William B. Webber Scholar* August 2015 - May 2016  
Highland Elementary School &  
Willamette Science Outreach Program Salem, OR

- Science outreach and communication scholarship developing and presenting science lessons to a 4th grade class

*Physics Departmental Tutor* January 2014 - May 2016  
Willamette University, Physics Department, Salem, OR

*Intro Physics Tutor* September 2013 - May 2014  
Willamette University, Office of Academic Support, Salem, OR

**MENTORING**

*Jada Walters* Summer 2018  
Montana State University Solar Physics REU Program, Bozeman, MT

- Now a PhD student at University of Arizona

**WORKSHOPS  
AND SCHOOLS**

*An Introduction to Chromospheric Diagnostics* July 2021  
4th NCSP DKIST Data-Training Workshop (Virtual)

*Milne-Eddington Spectro-polarimetric Inversions* July 2020  
3rd NCSP DKIST Data-Training Workshop (Virtual)

*Image processing and Time Series* January 2020  
2nd NCSP DKIST Data Training Workshop  
Cal State Northridge, Northridge, CA  
Travel funding awarded

*NCSP DKIST Level 2 Data Training Workshop: An introduction  
to ground-based data* June 2019  
NSO, Boulder, CO  
Travel funding awarded

*Heliophysics Summer School* July 2018  
UCAR, Boulder, CO  
Travel funding awarded

**LEADERSHIP  
AND SERVICE**

*Graduate Student Library Representative* May 2019 - April 2021  
Montana State University, Physics Department, Bozeman, MT

*Webmaster* August 2018 - January 2021  
Heliophysics Journal Club, Montana State University, Bozeman, MT

*Co-Graduate Student Representative* May 2018 - May 2019  
Montana State University, Physics Department, Bozeman, MT

*Recruiting Committee* October 2017 - May 2019  
Montana State University, Physics Department, Bozeman, MT

*Opening Days (Freshman Orientation) Leader* August 2013, August 2014  
Willamette University, Salem, OR