

## Accomplishments – 2022 – Patricia H. Reiff, Rice University

### Major accomplishments:

1. Continued work on pathbreaking MMS mission. Graduate students James Webster and Andrew Marshall published several papers and finishing up their PhD theses. Served on “Red Team” to review extended mission proposal. Mission now extended through September 2026. (<https://mms.rice.edu>)
2. Outreach programs reached thousands in both in person and in virtual lectures and events. Several major teacher workshops: 2 NSTA, one CAST. Several invited talks, including web-based. (<https://space.rice.edu/HEAT>)
3. Organized “Reach for the Stars” Festival for 2022 held April 9 with 190 middle school girl participants, 28 presenters and volunteers, and 90 adults. Additional outreach events for Hispanic students in June in South Texas and in July at Southwest Research Institute. (<https://space.rice.edu/ReachforTheStars>)
4. Honored “Outstanding alumnus”, College of Arts and Sciences, Oklahoma State University, 9/16/2022. <https://cas.okstate.edu/honors/alumni/distinguished-alumni.html>. Represented OSU in Inaugural activities
5. Organized 60<sup>th</sup> Anniversary of the JFK talk alumni reunion, with first-ever “Space Spelfie”. Over 100 alumni participants in person and virtual. Over 7000 attended stadium event on 9/12/2022.

### Invited Talks

1. Invited speaker, Science Friday, 10/19/22 (<https://sciencefriday.com/suncamp>)
2. Invited panelist, AAS Eclipse Workshop (virtual), 10/21/22

### Media Appearances/Articles:

1. 9/13/2022: Quoted in Rice News article on the “Spelfie” the 60<sup>th</sup> Anniversary of the JFK Speech on campus: <https://news.rice.edu/news/2022/thine-own-spelf-be-true>
2. Panelist, AAS Eclipse Workshop, 10/21. <https://eclipse.aas.org/workshops/oct2022>  
<https://www.youtube.com/watch?v=MXUgDxqgCRs>
3. Texas Monthly, October Issue, quoted as saying “no way” wind farms can affect the Earth’s magnetic field: <https://www.texasmonthly.com/news-politics/power-grid-advisory-committee-renewables-shut-out/>
4. Reiff served as the first scientist to be featured for Q&A in the Science Friday “Suncamp” series on October 19, 2022. (<https://sciencefriday.com/suncamp>). The complete playlist is available here: <https://youtube.com/playlist?list=PLB2w1JNHV4HR0vBq5XLbsrnVCrDs-9o1h>. The Reiff session is here: <https://www.youtube.com/watch?v=sd0qWx6a19o>.
5. 10/31/22: Article and diagram on Selenelions in Forbes <https://www.forbes.com/sites/jamiecartereurope/2022/10/31/what-is-a-selenium-eclipse-the-weird-blood-moonset-sunrise-coming-to-the-america-next-week/?sh=f4950e05ccdf>

### Departmental Activities

- DEI Committee (ended 7/22), Observatory Committee, Graduate Committee
- Faculty Search Committee spring 2022
- GCURS reviewer

## University/School Activities

- Associate Director for Outreach, RSI (over 13,000 in active emailing lists)
- Director, Master of Science Teaching Program (<https://mst.rice.edu>)
- Head, Space Science Alumni organization (“SPACAlum”) (<https://spacalum.rice.edu>)
- Director, “Reach for the Stars” outreach event for girls
- Dean’s Teaching Faculty Review Committee
- Associate, Brown College
- Organizer, Rice University Trip for 2024 Total Eclipse

## Professional Activities

- Rice University Representative, Universities Space Research Assn (USRA)
- ISSI Reconnection Book Committee
- AGU College of Fellows
- AGU SPA EPO Committee 2000-2022 (now part of overall Education Committee)
- AAS Eclipse Task Forces: Informal Science and also Local Arrangements

## Lectures/Conferences

1. MMS workshop presentation, Daytona, May, 2022
2. Paper on using MHD modeling in reconnection studies, ISSI workshop, July 2022.
3. 2 papers, fall AGU 2022 meeting (Chicago), Dec 2022

## Publications

Burkholder, B., P. Reiff et al., “MMS Observations of Storm-time Magnetopause Boundary Layers in the Vicinity of the Southern Cusp”. *Geophys. Res. Lett.*, doi: 10.1029/2022GL101231, (2022).

Hasegawa, H., Denton, R. E., Nakamura, T. K. M., Genestreti, K. J., Phan, T. D., Nakamura, R., J. M. Webster et al. (2022). Magnetic Field Annihilation in a Magnetotail Electron Diffusion Region with Electron-scale Magnetic Island. *Journal of Geophysical Research: Space Physics*, 127, e2022JA030408. <https://doi.org/10.1029/2022JA030408>.

J. L. Burch, M. Hesse, J. M. Webster, K. J. Genestreti, R. B. Torbert, R. E. Denton, R. E. Ergun, B. L. Giles, D. J. Gershman, C. T. Russell, S. Wang, L.-J. Chen, K. Dokgo, K.-J. Hwang, and C. J. Pollock, "The EDR inflow region of a reconnecting current sheet in the geomagnetic tail", *Physics of Plasmas*, 29, 052903 (2022) <https://doi.org/10.1063/5.0083169>.

Marshall, A. T., Burch, J. L., Reiff, P. H., Webster, J. M., Denton, R. E., Rastaetter, L., Torbert, R. B., Ergun, R. E., Russell, C. T., and Gershman, D. J. (2022) Lower hybrid drift wave motion at a dayside magnetopause x-line with energy conversion dominated by a parallel electric field. *Physics of Plasmas* 29, 012905. <https://doi.org/10.1063/5.0071159>.

Genestreti, K. J., C. Farrugia, S. Lu, P. H. Reiff, T.-D. Phan, D. N. Baker, T. W. Leonard, S. K. Vines, J. L. Burch, S. T. Bingham, I. J. Cohen, et al., Multi-scale observation of magnetotail reconnection onset: 1. macroscopic dynamics, *JGR* (in press) 2022. \_

## Outreach Events

2022	Event	Location (web link if possible)	Students	Public	Educators (formal or informal)
Jan-April	ASTR 503 "Astronomy for Teachers" Course	Rice University	0	0	11
1/3-5; 11-13/22	NSF Panel reviews	Served on NSF review panel			
1/27- 1/28/22	Eclipse teacher trainings	Commonwealth Charter Academy, Pittsburgh (1/27) and Harrisburg (1/28) PA			32
2/10/22	Dome at Science Night	Arredondo Elem, Rosenberg	300	40	6
3/19/22	Equinox Event at HMNS	HMNS/Rice	80	160	20
3/31-4/2 /2022	Eclipse Workshop at NSTA Houston	At workshop: 37 teachers. Training in dome: 411	10		448
4/8/22	Barbers Hill ISD students	Visited Rice observatory and got eclipse training in dome	40	0	4
4/9/22	"Reach for the Stars" event for middle school girls	<a href="http://space.rice.edu/ReachForTheStars/">http://space.rice.edu/ReachForTheStars/</a>	185	55	30
5/10/22	"CCMC modeling of MMS events"	Talk at MMS team meeting, Daytona			110
6/16- 17/22	Eclipse trainings in Brownsville TX (Hispanic)	6/16: Morningside Element. 6/17: Ben Brite School	200	0	12
6/21/22	TLIIST STEM academy	Eclipse training to teachers			19
6/21/22	Solstice at the Sundial* <i>*includes 150 in person</i>	Live event at HMNS sundial and also online	0	190	0
6/27/- 7/1/22	ISSI workshop, Bern, Switzerland	Give talk and organize review papers for ISSI book on reconnection			50
7/21- 23/22	NSTA, Chicago	Eclipse trainings for teachers in the Discovery Dome			345
7/27/22	Eclipse and Space Weather presentation and demo	For "YES" High school interns at SWRI, San Antonio	21		2
Aug-Dec	PHYS 501	Physics of Ham Radio Class	2		12
9/9- 12/22	60 <sup>th</sup> Anniversary JFK Speech and SPAC reunion	Chief organizer of SPAC reunion, organizer of stadium JFK event; exhibitor	5000	1850	50
10/19/22	"Sun 101: Q&A"	Invited speaker on "Science Friday" (thousands of hits)	web	web	web
10/21/22	"Eclipse resources"	Invited panelist, AAS Eclipse workshop (virtual), New York			200
11/10- 12/22	"Eclipses 2023-24: Where to go, how to observe safely"	Workshop and booth at CAST science teacher conference, Dallas (4000 eclipse glasses and 1500 maps given away)			533
11/15/22	"Ham radio and space weather"	Presentation to "Ducks on the Air", Univ of Oregon ham club	40		
12/14/22	"Eclipses 2023-24: Where to go, how to observe"	Talk to fall AGU meeting (Chicago)			50
Total			5878	2295	1367

**Total reached in person** in public talks, online and outreach events: **3,307**  
(not including ~7000 at the JFK 60<sup>th</sup> anniversary or web-only appearances)