
ALLISON N. JAYNES
DEPARTMENT OF PHYSICS & ASTRONOMY
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Current Position

Assistant Professor, Department of Physics & Astronomy, University of Iowa 8/2017 – present

- Advisor to four PhD students and one postdoctoral researcher
- Co-Investigator on NASA’s Van Allen Probes and Voyager missions
- Co-Investigator on the LAMP (Loss through Auroral Microburst Pulsations) Sounding Rocket, GTOSat Cubesat, and AEPEX Cubesat missions

Education

B.S. in Physics, University of North Carolina at Greensboro 2006
Ph.D. in Physics, University of New Hampshire, Marc R. Lessard, Advisor 2013

Research Interests

- The Van Allen radiation belt and ring current physics
- Energetic particle dynamics in the magnetosphere, particularly relativistic electron acceleration related to substorm activity
- Wave-particle interactions throughout near-Earth space
- Magnetosphere-ionosphere coupling mechanisms and effects:
 - Auroral physics and the relation to the radiation belts
- Magnetosphere-atmosphere interactions:
 - Chemical changes in the atmosphere due to particles from space
 - Short-term and long-term ozone and climate effects

Honors & Awards

NSF CAREER Award	2021-Present
Institutional Nominee for US National Blavatnik Awards for Young Scientists	2021
UIowa Postdoctoral Association Mentor Award	2021
Top Downloaded Paper 2018-2019, AGU Wiley	2020
NASA Graduate Student Researchers Program (GSRP) Fellowship	2010-2013
New Hampshire Space Grant Graduate Fellowship	2009-2010

Funded Grants & Contracts

PI led:

NSF CAREER Award: Revealing the connection between pulsating aurora and the dynamics of the inner magnetosphere (PI), PI: Allison Jaynes, UIowa, 5 years, \$682k 2021 – present

NASA HTIDeS Heliophysics Supporting Research award (PI), 2017 – 2020
‘The importance of event-specific spatial and temporal variations in chorus wave activity on radiation belt evolution’,
3 years, Direct to UIowa: \$568k total

NASA Magnetospheric Multiscale mission (EPD Instrument Team), 2014 – present
Direct to UIowa: \$96k total for 2017-2020, \$62k for 2021-2022

NASA Van Allen Probes mission (Co-I), 2014 – present
Direct to UIowa: \$33k per year for 2017-2019 and \$25k per year for 2019-2021

NASA Voyager mission PWS team (Co-I), 2014 – present
Direct to UIowa: \$36k per year, 2020-present

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Co-I:

NASA COUSIN Sounding Rocket Mission (Co-I), 3 years, Direct to UIowa: 2021-2024
\$543k total

NASA Heliophysics Mission Concept Study: JUPITER’s Global maGnetic Environment and Radiation ObservaTory (JUGGERNOT) (Co-I), 1 year, 2021-2022
Direct to UIowa: \$15k total

NASA HTIDeS Heliophysics Supporting Research award (Co-I), 2021-2024
‘The role of local and radial diffusion in the multi-MeV electron acceleration’, 3 years, Direct to UIowa: \$84k total

NASA HTIDeS Heliophysics Supporting Research award (Co-I), 2021-2024
‘The Roles of Inward Radial Diffusion and Local Acceleration on the Energy-Dependent Energization of Ultrarelativistic Electrons ($E \geq 3$ MeV) in the Center of the Outer Radiation Belt’, 3 years, Direct to UIowa: \$116k total

NASA FINESST Award: Investigating the Role of Pulsating Aurora to M-I Coupling through a Statistical Study of its Drivers and Energies (PI), PI: Allison Jaynes, Co-PI: Graduate student Riley Troyer, UIowa, 1 year 2020 – 2023
currently (renewable to 3 years total), Direct to UIowa: \$45k per year

Innovations in Teaching with Technology Awards (ITTA): The Edge of Space, Hands-on Space Instrumentation Design (PI), Internal funding for 2019 – 2020
course development, \$40k

NASA AEPEX (Atmosphere Effects of Precipitation through Energetic X-rays) CubeSat Mission, (Co-I), PI: Bob Marshall, Univ. of Colorado, 4 years, 2019 – 2023
Direct to UIowa: \$108k

NASA LAMP (Loss through Auroral Microburst Pulsations) Sounding Rocket mission (Co-I), PI: Sarah Jones, NASA Goddard, 3 years, Direct to 2018 – 2021
UIowa: \$98k

NASA GTOSat Cubesat mission (Co-I), PI: Lauren Blum, NASA Goddard, 2018 – 2022
4 years, Direct to UIowa: \$81k

NSF A PhD Data Analysis Summer School – Seed Grant (PI), PI: Allison 2018 – 2019
Jaynes, Univ. of Iowa, 1 year, \$50k

NSF Undergraduate Sounding Rocket Field School – Seed Grant (Co-I), 2018 – 2019
PI: David Miles, Univ. of Iowa, 1 year, \$50k

Old Gold Summer Fellowship (PI), University of Iowa, ‘PLASMIC: A new 2018
detector for investigation of energetic particles in the M-I system’, Summer 2018, \$6k

NASA Heliophysics Living With a Star (LWS) award (Co-I), 'Effects of advective and diffusive transport of trapped energetic particles in radiation belt models' - PI: Scot Elkington, Univ. of Colorado, 4 years, Direct to UIowa: \$128k	2017 – 2021
NASA Graduate Student Researchers Program (GSRP) fellowship (PI), 3 consecutive academic years, \$30k/yr.	2010 – 2013
New Hampshire Space Grant graduate fellowship (PI), ~\$30k	2009 – 2010

Professional Appointments

Assistant Professor , Department of Physics & Astronomy, University of Iowa <ul style="list-style-type: none"> • NSF CAREER Award recipient - January 2021 • Teaching a variety of undergraduate and graduate physics classes • Co-Investigator on NASA's Van Allen Probes and Voyager missions • Instrument Team Member on NASA's Magnetospheric Multiscale mission • Co-Investigator on the LAMP (Loss through Auroral Microburst Pulsations) Sounding Rocket, GTOSat Cubesat, and AEPEX Cubesat missions • Principal Investigator on NASA MIDEX proposal submitted 10/2019 	8/2017 – present
Research Scientist II , Laboratory for Atmospheric and Space Physics, University of Colorado Boulder <ul style="list-style-type: none"> • Space Physics research group • Data analysis for NASA's Van Allen Probes and MMS missions • Deputy PI on NASA SMEX proposal submitted 10/2016 (not selected) 	7/2015 – 7/2017
Research Scientist I (Post-doc), Laboratory for Atmospheric and Space Physics, University of Colorado Boulder <ul style="list-style-type: none"> • Supervisors: Dr. Daniel Baker and Dr. Xinlin Li • Energetic particles observations and radiation belt dynamics • Co-Investigator and Member of Van Allen Probes Science Team • Instrument Team Member on the Fly's Eye Energetic Particle Spectrometer (FEEPS), onboard the MMS mission 	2/2013 – 7/2015
Graduate Research Assistant , MIRL Lab, Space Science Center, University of New Hampshire <ul style="list-style-type: none"> • Advisor: Dr. Marc R. Lessard • Dissertation on the morphology and source region of pulsating aurora 	4/2008 – 2/2013
NASA Graduate Student Researchers Program (GSRP) Fellow , Joint Appointment: University of New Hampshire and Goddard Space Flight Center <ul style="list-style-type: none"> • Advisors: Dr. Marc R. Lessard (UNH) and Dr. Thomas E. Moore (GSFC) 	8/2010 – 2/2013

Teaching & Mentoring Experience

Assistant Professor , Department of Physics & Astronomy, UIowa <ul style="list-style-type: none"> • Taught introductory undergraduate courses in physics for engineers and physics majors, including Peer Instruction active learning components • Taught graduate level mission design course with hands-on hardware built for flight on high-altitude balloons 	8/2017 – present
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Postdoctoral Research Supervisor to postdoctoral fellow Rachael Filwett, UIowa	7/2018 – present
<ul style="list-style-type: none"> • Awarded an NSF Postdoctoral Research Fellow grant for 2 years • Working on independent research involving the Van Allen Probes, including high-energy protons that impact the Earth’s magnetosphere as a result of Solar Energetic Proton events • Published research on SEP access to the Earth [<i>Filwett et al., 2020</i>] 	
Graduate Student Research Supervisor to Riley Troyer, 4th year, UIowa	1/2019 – present
<ul style="list-style-type: none"> • Passed the comprehensive exam • Researching the causes of pulsating and diffuse aurora • Recipient of a NASA FINESST graduate student fellowship • Contributing to the LAMP sounding rocket mission • Published research on diffuse auroral eraser [<i>Troyer et al., 2021</i>] 	
Graduate Student Research Supervisor to Jayasri Joseph, 3rd year, UIowa	1/2019 – present
<ul style="list-style-type: none"> • Researching energetic particle dynamics in the inner radiation belts • Working on FPGA design for the PLASMIC instrument • Recipient of the 2021 Goertz/Nicholson Memorial Scholarship • Published research on inner zone radiation belt [<i>Joseph et al., 2020</i>] 	
Graduate Student Research Supervisor to Sanjay Chopuri, 3rd year, UIowa	5/2020 – present
<ul style="list-style-type: none"> • Researching particle acceleration using the MMS mission • Publication currently under review - statistical study of acceleration events 	
Graduate Student Research Supervisor to Keith Vidal, 6th year, (switched advisors May 2021) UIowa	5/2021 – present
<ul style="list-style-type: none"> • Researching particle acceleration using the MMS mission • Publication currently under review - statistical study of acceleration events 	
Undergraduate Student Research Supervisor to Joshua Doucette, UIowa	11/2018 – 12/2020
<ul style="list-style-type: none"> • Worked on Van Allen Probes data analysis project • Received a Wert scholarship through UIowa P&A – summer 2019 • Awarded an Iowa Space Grant Fellowship for academic year 2019-2020 	
Undergraduate Student Research Supervisor to Kawther Rouabhi, UIowa	6/2020 – present
<ul style="list-style-type: none"> • Working on machine learning project to identify pulsating aurora 	
Undergraduate Student Research Supervisor to Juliana Karl, UIowa	5/2021 – present
<ul style="list-style-type: none"> • Helping to classify aurora from allsky video data 	
Lecturer at international Sounding Rocket Field School, Andøya Space Center, Norway	1/2020
PhD Thesis Committee Member for six graduate students, UIowa	1/2019 – present
External PhD Thesis Committee Member for three graduate students at international institutions (University of Otago, University of Potsdam, University of Calgary)	1/2019 – 5/2020
Research Supervisor to postbac researcher Alexis Leali, UIowa	5/2021 – present
<ul style="list-style-type: none"> • Supporting NSF CAREER research • Graduate of UIowa Physics & Astronomy, BS in Physics 	
Research Supervisor to postbac researcher Connor Pollock, UIowa	6/2018 – 6/2020
<ul style="list-style-type: none"> • Completed project involving Geant4 modeling of particle interactions with the PLASMIC energetic particle detector • Now in graduate school at Montana State University 	

Research Supervisor to undergraduate Collin Kolars, UIowa	9/2018 – 4/2019
<ul style="list-style-type: none"> • Worked on project involving machine learning to identify pulsating aurora from all-sky camera image data 	
Research Supervisor to undergraduate Christy Lentz, LASP, University of Colorado Boulder	1/2016 – 7/2017
<ul style="list-style-type: none"> • Co-supervised Christy (together with Dr. Dan Baker) in data analysis of MAVEN solar wind observations, and comparison with WSA-Enlil modeled solar wind at Mars • Published “Statistical Similarities Between WSA-ENLIL+Cone Model and MAVEN in situ Observations from November 2014 to March 2016” in Space Weather [<i>Lentz et al.</i>, 2018] 	
REU Co-Mentor to undergraduate Margie Bruff (from University of North Carolina at Chapel Hill), LASP, University of Colorado Boulder	5/2017 – 8/2017
<ul style="list-style-type: none"> • Project title: The relationship between the plasmopause and Earth’s high-energy radiation belts • Research presented by Margie at AGU 2017 Fall Meeting 	
REU Co-Mentor to undergraduate Veronica Dike (from University of New Mexico), LASP, University of Colorado Boulder	5/2016 – 8/2016
<ul style="list-style-type: none"> • Project title: Cross-Correlating Radiation Belt Electron Flux and Substorm Activity • Currently enrolled in the graduate program at UCLA 	
REU Co-Mentor to undergraduate Cory Boulé (from Keene State College), LASP, University of Colorado Boulder	5/2015 – 8/2016
<ul style="list-style-type: none"> • Led Cory in a data analysis study of EFW and EMFISIS aggregate wave data and the relation of various wave modes to the local plasmopause location • Resulted in co-authored publication [<i>Malaspina et al.</i>, 2016] 	

Professional Service

Member , Heliophysics Advisory Committee (HPAC), NASA HQ	5/2021 – present
Member , UIowa Research and Discovery Development Team, part of the UI Strategy Team	4/2021 – present
Member , AGU Honors, Fred Scarf Award Committee	4/2021 – present
Member , National Academies (NASEM) Committee on Increasing Diversity and Inclusion in the Leadership of Competed Space Missions	12/2020 – present
Member , USNC-URSI Commission H (Elected 2020)	6/2020 – present
Member , University of Iowa Faculty Senate	5/2020 – present
Co-Chair , SCOSTEP PRESTO (Predictability of the Variable Solar-Terrestrial Coupling), Pillar 1: Sun, interplanetary space and geospace	10/2019 – present
Member , UIowa Physics & Astronomy, Graduate Recruitment and Admissions Committee	8/2019 – present
Co-Chair , NASA HQ GDC (Geospace Dynamics Constellation) Science and Technology Definitions Team	8/2018 – 10/2019

Member , NSF GEM Steering Committee	6/2018 – present
Member , AGU Fellows Nomination Task Force (Chair 2019-2020)	7/2019 – present
Member , Heliophysics Science Program Committee for the NASA workshop on science enabled by the Deep Space Gateway (DSG)	2017
Chair , LASP Friends of the Magnetosphere Seminar series	5/2016 – 7/2017
Member , Fall AGU On-Demand Advisory Group	7 – 12/2016
Reviewer , JGR-Space Physics, GRL, Space Weather, JASTP, Annales Geophysicae	2012 – present
Reviewer , Various NASA and NSF proposals	2011 – present
Panel Secretary , NASA Geospace Panel Review	9/2011
Member of Scientist Network , Aurorasaurus.org, Citizen Science Project	2013 – present

Conference Presentations & Leadership

Selected Invited Presentations:

- UCLA AOS Seminar, Energetic particles keep falling on my head 9/2021
- ICEAA/IEEE/URSI Meeting, Boundaries and enhancements: ULF wave-driven dynamics of energetic particles in the Van Allen belts 8/2021
- University of Athens Seminar Series, New Discoveries from the Van Allen Probes Mission 3/2021
- AGU Fall Meeting, The Drivers of Radial Diffusion-Dominated Radiation Belt Acceleration Events 12/2020
- AGU Fall Meeting, SmallSat and CubeSat Technology to meet the needs of Geospace Dynamics Constellation 12/2020
- VERSIM Conference, Kyoto, A Four-Belt Structure in Earth's Van Allen Belts 11/2020
- LASP FOM seminar series, University of Colorado Boulder, Van Allen Probes Energetic Particle Dynamics: Science Highlights 7/2020
- Truman State University, The Study of 'Killer' Charged Particles in the Earth's Magnetosphere 4/2019
- COSPAR 2018 Assembly, Pasadena, CA, The fascinating dynamics of the high-energy Van Allen radiation belts 7/2018
- SCOSTEP STP 14 Meeting, Toronto, Canada, The fascinating dynamics of the high-energy Van Allen radiation belts 7/2018
- GEM 2018 Meeting Panel Invitation, Santa Fe, NM, Biggest open questions in radiation belt physics 6/2018
- TESS 2018 Panel Invitation, Leesburg, VA, DRIVE-ing the next generation of space and solar physicists 5/2018

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- AGU Chapman Conference on Particle Dynamics in the Earth’s Radiation Belts, The impressive correlation between substorm activity and the rebuilding of Earth’s radiation belts 3/2018
 - National Academies of Sciences Explorer I Celebration, Washington, D.C., The cutting edge of radiation belt research 1/2018
 - URSI National Radio Science Meeting, Fast diffusion of ultra-relativistic electrons in the outer radiation belt: 17 March 2015 storm event 1/2018
 - Fall AGU 2017, Taking Risks for the Future of Space Weather Forecasting, Research, and Operations 12/2017
 - Grinnell College Physics Colloquium, The Study of ‘Killer’ Charged Particles in the Earth’s Magnetosphere 10/2017
 - IUGG Joint Assembly 2017, Energetic particle enhancements and VLF waves in the vicinity of dayside reconnection 8/2017
 - LASP Public Lecture Series, NASA’s MMS Mission: Revolutionizing Our Understanding of Magnetic Reconnection 5/2017
 - Conference for Undergraduate Women In Physics (CUWiP), Space physics 1/2017
 - Fall AGU meeting, ULF modulation of VLF waves and auroral precipitation 12/2016
 - Rice University Space Physics Seminar, Radiation belt dynamics 11/2016
 - AOGS Beijing, substorm relationships to relativistic radiation belt enhancements 8/2016
 - ISSI Workshop on the Scientific Foundation of Space Weather, Bern 6/2016
 - SHIELDS meeting, LANL, substorms and radiation belts 4/2016
 - URSI National Radio Science Meeting, the role of source and seed electrons in generating the multi-MeV radiation belt population 1/2016
 - Fall AGU, integrated ground- and space-based observations 12/2015
 - LASP Public Lecture Series, The origins and mystery of the aurora 12/2015
 - Dartmouth College Physics and Astronomy Space Plasma Seminar, advancements in radiation belt science 10/2015

Member of ISSI team – Radiation belt physics from top to bottom: Combining multipoint satellite observations and data-assimilative models to determine the interplay between sources and losses 3/2019 – present

Primary Session Convener:

- Fall AGU 2020 meeting, entitled “Polar Geospace Research: A Focus on Interhemispheric Conjugacy and Diffuse Aurora” 12/2020
- Fall AGU 2015 meeting, entitled “Understanding the dynamic loss of Earth’s radiation belts” 12/2015
- AOGS 2015 conference, merged session originally entitled “Understanding the dynamics of the Earth’s radiation belts in the fundamental context of the Sun-Earth system” 8/2015

- AGU Joint Assembly 2015 conference, entitled “Energetic particle precipitation mechanisms and effects in the Magnetosphere-Ionosphere system” 5/2015

Co-convener for oral sessions at: Fall AGU 2020, AOGS 2019, Fall AGU 2019, AOGS 2018, AOGS 2017, Fall AGU 2017, AOGS 2016, Fall AGU 2016, AOGS 2014

Synergistic Activities

Primary Editor , Elsevier book entitled “The Dynamic Loss of Earth’s Radiation Belts”	published 9/2019
PI , NASA Medium-Class Explorer mission proposal entitled ‘EPPIC: Energetic Particle Precipitation Impacts & Coupling’ (not selected)	submitted 10/2019
Deputy PI , NASA Small Explorer mission proposal entitled ‘EPPIC: Energetic Particle Precipitation Impacts & Coupling’ (not selected)	submitted 10/2016
Principal Investigator on 7 competitive research grant proposals to NASA and 2 to NSF	2014 – present
Co-Investigator on 20+ competitive research grant proposals to NASA and 2 to NSF	2013 – present
Reviewer of numerous virtual and in-person NASA and NSF proposals, including large spacecraft mission programs	2012 – present

List of Publications

Investigations with MMS satellite mission

Investigations with Van Allen Probes satellite mission

Other missions/projects

*=primary author or direct supervisor of primary author

=secondary contribution *=equal contribution ****=minor contribution

95. *Jaynes, A. N., Doucette, J., Baker, D. N., Li, X., Kanekal, S. G. (2021). ULF wave-driven enhancements of energetic particles in the Van Allen belts. *Journal of Geophysical Research: Space Physics*, in submission.
94. *Jaynes, A. N., Kellerman, A., Baker, D. N., Murphy, K. R., Pollock, C. M., Doucette, J. D., Li, X., Zhao, H., Kanekal, S. G. (2021). A Four-Belt Structure in Earth’s Van Allen Belts. *Nature Physics*, in submission.
93. *Joseph, J., Jaynes, A. N., Usanova, M. E., Hartley, D. P. (2021). The effect of equatorial noise on the proton density structure of the inner Van Allen belt. *Journal of Geophysical Research: Space Physics*, under review.
92. ***Kallioikoski, M. M. H., Kilpua, E. K. J., Osmane, A., Jaynes, A. N., Turner, D. L., George, H., Turc, L., Palmroth, M. (2021) Phase Space Density Analysis of Outer Radiation Belt Electron Energization and Loss during Geoeffective and Nongeoeffective Sheath Regions. *Journal of Geophysical Research: Space Physics*, under review.
91. *Chepuri, S., Jaynes, A. N., Baker, D. N., Mauk, B. H., Cohen, I. J., Leonard, T., Turner, D. L., Blake, J. B., Fennell, J. F. (2021). A Statistical Study of Magnetopause Boundary Layer Energetic Electron Enhancements Using MMS. *Journal of Geophysical Research: Space Physics*, under review.

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90. ****Turner, D. L., Cohen, I. J., Michael, A., Sorathia, K., Merkin, S., Mauk, B. H., et al. (2021). Can Earth's magnetotail plasma sheet produce a source of relativistic electrons for the radiation belts? *Geophysical Research Letters*, 48, e2021GL095495. doi:10.1029/2021GL095495.
89. **Baker, D.N., et al. The Relativistic Electron-Proton Telescope (REPT) Investigation: Design, Operational Properties, and Science Highlights. *Space Sci Rev* 217, 68 (2021). doi:10.1007/s11214-021-00838-3.
88. ***Olifer, L., et al. (2021). Swarm observations of dawn/dusk asymmetries between Pedersen conductance in upward and downward field-aligned current regions. *Earth and Space Science*, 8, e2020EA001167. doi:10.1029/2020EA001167.
87. ****Blum, L. W., Koval, A., Richardson, I. G., Wilson, L. B., Malaspina, D., Greeley, A., & **Jaynes, A. N.** (2021). Prompt response of the dayside magnetosphere to discrete structures within the sheath region of a coronal mass ejection. *Geophysical Research Letters*, 48. doi:10.1029/2021GL092700.
86. *Troyer, R. N., **Jaynes, A. N.**, Jones, S. L., Knudsen, D. J., & Trondsen, T. S. (2021). The diffuse auroral eraser. *Journal of Geophysical Research: Space Physics*, 126. doi:10.1029/2020JA028805.
85. ****Boyd, A. J., Spence, H. E., Reeves, G. D., Funsten, H. O., Skoug, R. M., Larsen, B. A., et al. (2021). RBSP-ECT combined pitch angle resolved electron flux data product. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028637. doi:10.1029/2020JA028637.
84. *Joseph, J., **Jaynes, A. N.**, Baker, D. N., Li, X., & Kanekal, S. G. (2021). Van Allen belt punctures and their correlation with solar wind, geomagnetic activity and ULF waves. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028679. doi:10.1029/2020JA028679.
83. **Malaspina, D. M., **Jaynes, A. N.**, Elkington, S., Chan, A., Hospodarsky, G., & Wygant, J. (2021). Testing the organization of lower-band whistler-mode chorus wave properties by plasmopause location. *Journal of Geophysical Research: Space Physics*, 126, e2020JA028458. doi:10.1029/2020JA028458.
82. ***Miyoshi, Y., Saito, S., Kurita, S., Asamura, K., Hosokawa, K., Sakanoi, T., et al. (2020). Relativistic electron microbursts as high-energy tail of pulsating aurora electrons. *Geophysical Research Letters*, 47, e2020GL090360. doi:10.1029/2020GL090360.
81. ***Kalliokoski, M. M., Kilpua, E. K., Osmane, A., Turner, D. L., **Jaynes, A. N.**, Turc, L., ... & Palmroth, M. (2020). Outer radiation belt and inner magnetospheric response to sheath regions of coronal mass ejections: A statistical analysis. *Annales Geophysicae*, 38, 3. doi:10.5194/angeo-38-683-2020.
80. *Filwett, R. J., **Jaynes, A. N.**, Baker, D. N., Kanekal, S. G., Kress, B., & Blake, J. B. (2020). Solar energetic proton access to the near-equatorial inner magnetosphere. *Journal of Geophysical Research: Space Physics*, 125, e2019JA027584. doi:10.1029/2019JA027584.
79. ***Blum, L. W., Kepko, L., Turner, D., Gabrielse, C., **Jaynes, A.**, Kanekal, S., ... & Lucas, J. (2020). The GTOSat CubeSat: scientific objectives and instrumentation. In *Micro-and Nanotechnology Sensors, Systems, and Applications XII* (Vol. 11389, p. 113892E). International Society for Optics and Photonics. doi:10.1117/12.2556268.
78. ***Sarris, T. E., Talaat, E. R., Palmroth, M., Dandouras, I., Armandillo, E., Kervalishvili, G., Buchert, S., Tourgaidis, S., Malaspina, D. M., **Jaynes, A. N.**, et al. (2020). Daedalus: a low-flying spacecraft for in situ exploration of the lower thermosphere-ionosphere, *Geosci. Instrum. Method. Data Syst.*, 9, 153-191, doi:10.5194/gi-9-153-2020.
77. ***Sigsbee, K., Kletzing, C. A., Faden, J., **Jaynes, A. N.**, Reeves, G., & Jahn, J.-M. (2020). Simultaneous observations of electromagnetic ion cyclotron (EMIC) waves and pitch angle scattering during a Van Allen Probes conjunction. *Journal of Geophysical Research: Space Physics*, 125, e2019JA027424. doi:10.1029/2019JA027424.

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76. ***Maxworth, A. S., Golkowski, M., Malaspina, D. M., & **Jaynes, A. N.** (2020). Raytracing study of source regions of whistler mode wave power distribution relative to the plasmopause. *Journal of Geophysical Research: Space Physics*, 125, e2019JA027154. doi:10.1029/2019JA027154.
75. ***Marshall, R. A., Xu, W., Woods, T., Cully, C., **Jaynes, A. N.**, Randall, C. E., Baker, D. N., McCarthy, M., Spence, H. E., Berland, G., Wold, A., & Davis, E. (2020). The AEPEX mission: Imaging energetic particle precipitation in the atmosphere through its bremsstrahlung X-ray signatures, *Advances in Space Research*, ISSN 0273-1177, doi:10.1016/j.asr.2020.03.003.
74. *Bruff, M., **Jaynes, A. N.**, Zhao, H., Goldstein, J., Malaspina, D. M., Baker, D. N., et al. (2020). The role of the dynamic plasmopause in outer radiation belt electron flux enhancement. *Geophysical Research Letters*, 47, e2020GL086991. doi:10.1029/2020GL086991.
73. ****Baker, D. N., Zhao, H., Li, X., Kanekal, S. G., **Jaynes, A. N.**, Kress, B. T., et al. (2019). Comparison of Van Allen Probes Energetic Electron Data With Corresponding GOES-15 Measurements: 2012-2018. *Journal of Geophysical Research: Space Physics*, 124. doi:10.1029/2019JA027331.
72. ****Boyd, A. J., Reeves, G. D., Spence, H. E., Funsten, H. O., Larsen, B. A., Skoug, R. M., et al. (2019). RBSP-ECT combined spin-averaged electron flux data product. *Journal of Geophysical Research: Space Physics*, 124. doi:10.1029/2019JA026733.
71. ***Zhao, H., Baker, D. N., Li, X., Malaspina, D. M., **Jaynes, A. N.**, & Kanekal, S. G. (2019). On the acceleration mechanism of ultrarelativistic electrons in the center of the outer radiation belt: A statistical study. *Journal of Geophysical Research: Space Physics*, 124. doi:10.1029/2019JA027111.
70. ****Xu, J., He, Z., Baker, D. N., Roth, I., Wang, C., Kanekal, S. G., et al. (2019). Characteristics of high-energy proton responses to geomagnetic activities in the inner radiation belt observed by the RBSP satellite. *Journal of Geophysical Research: Space Physics*, 124. doi:10.1029/2018JA026205.
69. ***Jaynes, A. N.**, E. A. MacDonald, and A. M. Keesee (2019), Equal representation in scientific honors starts with nominations, *Eos*, 100. doi:10.1029/2019EO117855 .
68. ****Qin, M., Hudson, M., Li, Z., Millan, R., Shen, X., Shprits, Y., Woodger, L., **Jaynes, A. N.**, Kletzing, C. A. (2019). Investigating loss of relativistic electrons associated with EMIC waves at low L values on 22 June 2015. *Journal of Geophysical Research: Space Physics*, 124. doi:10.1029/2018JA025726.
67. ****Cohen, I. J., Mauk, B. H., Turner, D. L., Fennell, J. F., Blake, J. B., Reeves, G. D., et al. (2019). Drift-dispersed flux dropouts of energetic electrons observed in Earth's middle magnetosphere by the Magnetospheric Multiscale (MMS) mission. *Geophysical Research Letters*, 46. doi:10.1029/2019GL082008.
66. ***Baker, D. N., Hoxie, V., Zhao, H., **Jaynes, A. N.**, Kanekal, S., Li, X., and Elkington, S. (2019). Multi-Year Measurements of Radiation Belt Electrons: Acceleration, Transport, and Loss. *Journal of Geophysical Research: Space Physics*, 124. doi:10.1029/2018JA026259.
65. ***Zhao, H., Baker, D. N., Li, X., **Jaynes, A. N.**, and Kanekal, S. G. (2019). The effects of geomagnetic storms and solar wind conditions on the ultrarelativistic electron flux enhancements. *Journal of Geophysical Research: Space Physics*, 124. doi:10.1029/2018JA026257.
64. ***Kilpua, E. K. J., Turner, D. L., **Jaynes, A.**, Hietala, H., Koskinen, H. E. J., Osmane, A., et al (2019). Outer Van Allen radiation belt response to interacting interplanetary coronal mass ejections. *Journal of Geophysical Research: Space Physics*, 124. doi:10.1029/2018JA026238.
63. ***Turner, D. L., E. K. J. Kilpua, H. Hietala, S. G. Claudepierre, et al. (2019), The response of Earth's electron radiation belts to geomagnetic storms: Statistics from the Van Allen Probes era including effects from different storm drivers, *J. Geophys. Res.*, doi:10.1029/2018JA026066.
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