Richard E. Denton

Richard E. Denton
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Education:

Ph.D.	Department of Physics, University of Maryland, 1986
M.A.	Department of Physics, SUNY at Stony Brook, 1979
B.S.	Department of Physics, College of William and Mary, 1977

Positions:

2004-Present,	Research Professor, Dartmouth College
1995-2004,	Research Associate Professor, Dartmouth College
1990-1995,	Research Assistant Professor, Dartmouth College
1990,	Research Associate, Center for Atomic Energy Research, France
1988-1990,	Research Associate, Institute for Fusion Studies, University of Texas, Austin
1987-1988,	Research Associate, University of Maryland
1982-1984,	Research Associate, Naval Research Laboratory

Management Experience:

PI, Determining the orientation and velocity of reconnecting structures, NASA 04/19-03/22
PI, Orientation, Velocity, and Structure of Reconnecting Regions, NASA, 10/13-09/17
PI, Distribution and Effects of Electromagnetic Ion Cyclotron Waves, NASA, 01/13-12/17
PI, Grad Student Support for Hybrid Code Simulation of Whistler Chorus, NSF, 02/12-01/17
PI, Collaborative Research: Magnetospheric Mass Density, NSF, 09/12-08/17.
PI, Magnetospheric Electron Density, NSF, 9/09-8/12.
PI, Magnetospheric Mass Density REU Supplement, NSF, 09-09-08/10
PI, Grad Student Support for Development of Dipole Coordinate Hybrid Code, NSF, 05/09-10/10
PI, Investigation of Magnetic Reconnection Geometry and Other Applications Involving Multiple Spacecraft, NASA, 10/08-09/13
PI, Magnetospheric Mass Density Model, NSF, 12/06-11/10
PI, Investigation of Magnetic Reconnection and Anisotropic Pressure Evolution, NASA, 09/07-08/08
PI, Investigations of Magnetospheric Magnetic Reconnection, NASA, 02/06-01/07
PI, Magnetospheric Density and Pressure, NSF, 07/03-06/06
PI, Investigation of Plasma Mass Density, NASA, 05/05-04/06
PI, Mass Density Along Field Lines, NASA, 03/02-03/06
PI, Magnetospheric Hydromagnetic Waves, NSF, 04/00-03/03

Courses Taught:

Computational Plasma Physics (Dartmouth Phys118, 2007, 2009, 2011, 2013)
Engineering Electrodynamics (Dartmouth ES120, 2008)
Plasma Kinetic Theory (Dartmouth Phys111, 1999)
Graduate Level Electrodynamics (Dartmouth Phys106, 1996, 1997)
Undergraduate Level Electrodynamics (Dartmouth Phys66, 1991)
University Physics (Northern Virginia Community College Phy241, Phy242, Phy243, 1979-1980)

Professional Service:

Served on review panels for NASA (1998, 2002, 2009, 2017, 2020, 2021) and NSF (2005, 2010, 2012, 2013, 2014)
Co-convener of special sessions at American Geophysical Union (AGU) meetings (2002, 2004, 2015)
Co-convener of AGU Chapman Conference on ULF Waves (2005)
Co-editor of AGU monograph *Ultra-low Frequency Waves in the Magnetosphere* and special issue of Planetary and Space Science by the same title (2006)
Review about a half a dozen journal articles and several proposals per year
Served on one to three Dartmouth thesis committees per year (to 2020)
Have advised nine Dartmouth Women in Science Program (WISP) students and have hired 12 undergraduates, two graduate students, two undergrads from other colleges, and two high school students to do research
Taught aerospace education at the Lebanon Squadron of the Civil Air Patrol (2000-2011).
Have participated on several Dartmouth panels discussing science and religion. Helped organize Veritas Forum at Dartmouth bringing together speakers with different points of view (2010-2014). Publish video series on Youtube.
Invited Dartmouth students to my house for dinner several times per term (1990-2014)

Member:
American Geophysical Union

Refereed Publications:

Vines, S. K., S. A. Fuselier, B. J. Anderson, R. E. Denton, and R. C. Allen (2022), Using the outer magnetosphere as a laboratory to explore the physics of EMIC waves, Frontiers, submitted.

Hosner, M., R. Nakamura1, D. Schmid, T. K. M. Nakamura, E. V. Panov, M. Volwerk, Z. Vörös, O. W. Roberts, K. A. Blasl1, A. Settino1, D. Korovinskiy, A. T. Marshall, R. E. Denton, J. L. Burch, B. L. Giles, R. B. Torbert, O. Le Contel, C. P. Escoubet, I. S. Dandouras, C. Carr, and A. N. Fazakerley (2023), Reconnection inside a dipolarization front of a diverging Earthward 1 fast flow, J. Geophys. Res. Space Physics, submitted.

Hasegawa, H., M.R. Argall, N. Aunai, R. Bandyopadhyay, N. Bessho, I.J. Cohen, R.E. Denton et al. (2023), Advanced Methods for Analyzing In-Situ Observations of Magnetic Reconnection, Space Sci Rev., submitted.

Pritchard, Kristina, James Burch, Stephen Fuselier , Kevin Genestreti, Richard Denton , James Webster, Jeffrey Broll (2023), Reconnection Rates at the Earth's Magnetopause and in the Magnetosheath, J. Geophys. Res. Space Physics, doi:10.1029/2023JA031475.

Shuster, J. R., D. J. Gershman, B. L. Giles, N. Bessho, A. S. Sharma, J. C. Dorelli, V. Uritsky, S. J. Schwartz, P. A. Cassak, R. E. Denton, L.-J. Chen, H. Gurram, J. Ng, J. Burch, J.Webster, R. Torbert, W. R. Paterson, C. Schiff, A. F. Vinas, L. A. Avanov, J. Stawarz, T. C. Li, Y.-H. Liu, M. R. Argall, A. Afshari, D. S. Payne, C. J. Farrugia, J. Verniero, F. Wilder, K. Genestreti, D. E. da Silva (2023), Temporal, spatial, and velocity-space variations of electron phase-space density measurements at the magnetopause, J. Geophys. Res. Space Physics, doi:10.1029/2022JA030949.

Hasegawa, H., R. E. Denton, K. Dokgo, K.-J. Hwang, T. K. M. Nakamura, and J. L. Burch (2023), Three-Dimensional Ion-Scale Magnetic Flux Rope Generated from Electron-Scale Magnetopause Current Sheet: Magnetospheric Multiscale Observations, J. Geophys. Res.

Space Physics, doi:10.1029/2022JA031092.

Denton, Richard E., Kazue Takahashi, Kyungguk Min, David P. Hartley, Yukitoshi Nishimura, and Matthew C. Digman (2022), Models for magnetospheric mass density and average ion mass including radial dependence, Front. Astron. Space Sci. 9:1049684. doi: 10.3389/fspas.2022.1049684.

Denton, Richard E., Yi-Hsin Liu, Hiroshi Hasegawa, Roy B. Torbert, Wenya Li, Stephen Fuselier, and James L. Burch (2022), Polynomial reconstruction of the magnetic field observed by multiple spacecraft with integrated velocity determination, J. Geophys. Res. Space Physics, doi:10.1029/2022JA030512.

Schroeder, Jack, Jan Egedal, Giulia Cozzani, Yuri Khotyaintsev, William Daughton, Richard Denton, James Burch (2022), 2D reconstruction of magnetotail electron diffusion region measured by MMS, Geophys. Res. Lett., doi:10.1029/2022GL100384.

Hasegawa, H., R. E. Denton, K. J. Genestreti, T. K. M. Nakamura, T. D. Phan, R. Nakamura, K.-J. Hwang, N. Ahmadi, Q. Q. Shi, M. Hesse, J. L. Burch, J. M. Webster, R. B. Torbert, B. L. Giles, D. J. Gershman, C. T. Russell, R. J. Strangeway, H. Y. Wei, P.-A. Lindqvist, Y. V. Khotyaintsev, R. E. Ergun, and Y. Saito (2022), Fast Magnetic Field Annihilation in Collisionless Electron-scale Current Sheet, J. Geophys. Res. Space Physics, doi:10.1029/2022JA030408.

Burch, J. L., 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, Phys. Plasmas 29, 052903 (2022); doi:10.1063/5.0083169.

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Marshall, A. T., J. L. Burch, P. H. Reiff, J. M. Webster, R. E. Denton, L. Rastaetter, R. B. Torbert, R. E. Ergun, C. T. Russell, D. J. Gershman (2021), Lower Hybrid Drift Wave Motion at a Dayside Magnetopause X-Line with Diffusion Dominated by a Parallel Electric Field, Phys. Plasmas, doi:10.1063/5.0071159.

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Paschmann, G., B.U.O. Sonnerup, T. Phan, S.A. Fuselier, S. Haaland, R. E. Denton, J. L. Burch, K. J. Trattner, B. L. Giles, D. J. Gershman, I. J. Cohen, and C. T. Russel (2021), Anomalous Reconnection Layer at Earth's Dayside 2 Magnetopause, J. Geophys. Res. Space Physics, doi:10.1029/2021JA029678.

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Shuster. J. R., D. J. Gershman, J. C. Dorelli, B. L. Giles, S. Wang, N. Bessho, L.-J. Chen, V. Uritsky, W. R. Paterson, P. A. Cassak, S. J. Schwartz, R. E. Denton, C. Schi, A. F. Viñas, J. Ng, L. A. Avanov, D. E. da Silva, and R. B. Torbert (2021), MMS Observations of electron phase space density gradients at the magnetopause, Nature Physics, doi:10.1038/s41567-021-01280-6.

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Min, K., K. Liu, R. E. Denton, F. Nemec, S. A. Boardsen, Y. Miyoshi (2020), Two-dimensional particle-in-cell simulations of magnetosonic waves in the dipole magnetic field: On a constant L-shell, J. Geophys. Res. Space Physics, doi:10.1029/2020JA028414.

Vines, S. K., B. J. Anderson, R. C. Allen, R. E. Denton, M. J. Engebretson, J. R. Johnson, S. Toledo-Redondo, J. H. Lee, D. L Turner, R. E. Ergun, R. J. Strangeway, C. T. Russell, H. Wei, R. B. Torbert, S. A. Fuselier, B. L. Giles, J. L. Burch (2021), Determining EMIC wave vector properties through multi-point measurements: The wave curl analysis, J. Geophys. Res. Space Physics, doi:10.1029/2020JA028922.

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Wang, Shan, Li-Jen Chen, Naoki Bessho, Michael Hesse, Lynn B. Wilson III, Richard Denton, Jonathan Ng, Barbara Giles, Roy Torbert, and James Burch (2020), Ion-scale current structures in Short Large-Amplitude Magnetic Structures, Astrophysical Journal, 898(2), doi:10.3847/1538-4357/ab9b8b.

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Manuzzo, R., G. Belmont, L. Rezeau, F. Califano, and R. E. Denton (2019), Crossing of plasma structures by spacecraft: A path calculator, J. Geophys. Res. Space Physics, 124, doi:1029/2019JA026632.

Denton, R. E., L. Ofman, Y. Y. Shpritts, J. Bortnik, R. M. Millan, C. J. Rodger, C. L. da Silva, B. N. Rogers, M. K. Hudson, K. Liu, K. Min, A. Glocer, and C. Komar (2019), Pitch angle scattering of sub-Mev relativistic electrons by electromagnetic ion cyclotron waves, J. Geophys. Res. Space Physics, doi:10.1029/2018JA026384.

Shuster, J. R., D. J. Gershman, L.-J. Chen, S. Wang, N. Bessho, J. C. Dorelli, D. E. da Silva, B. L. Giles, W. R. Paterson, R. E. Denton, S. J. Schwartz, C. Norgren, F. D. Wilder, P. A. Cassak, M. Swisdak, V. Uritsky, C. Schiff , A. C. Rager, S. Smith, L. A. Avanov, and A. F. Viñas (2019), MMS measurements of the Vlasov equation: Probing the electron pressure divergence within thin current sheets, Geophys. Res. Lett., DOI:10.1029/2019GL083549.

Min,.K., F. Nemec, K. Liu , R. E. Denton , and S. A. Boardsen (2019), Equatorial propagation of the magnetosonic mode across the plasmapause: 2-D PIC simulations, J. Geophys. Res. Space Physics, 124, doi:10.1029/2019JA026567.

Nakamura, R., K. J. Genestreti, T. Nakamura, W. Baumjohann, A. Varsani, T. Nagai4, N. Besso, J. L. Burch, R. E. Denton, J. P. Eastwood, R. E Ergun, D. J. Gershman, B. L. Giles, H. Hasegawa, M. Hesse, P.-A. Lindqvist, C. T. Russell, J. E. Stawarz, R. J. Strangeway, R. B. Torbert (2018), Structure of the current sheet in the 2017/07/11 electron 2 diffusion region event, J. Geophys. Res. Space Physics, doi: 10.1029/2018JA026028.

Min,.K., S. A. Boardsen, R. E. Denton, and K. Liu (2018), Equatorial evolution of the fast magnetosonic mode in the source region: Observation-simulation comparison of the preferential propagation direction, J. Geophys. Res. Space Physics, 123, doi: 10.1029/2018JA026037.

Hasegawa, H., R. E. Denton, R. Nakamura, K. J. Genestreti, T. K. M. Nakamura, K.-J. Hwang, T. D. Phan, R. B. Torbert, J. L. Burch, B. L. Giles, D. J. Gershman, C. T. Russell, R. J. Strangeway, P.-A. Lindqvist, Y. V. Khotyaintsev, R. E. Ergun, N. Kitamura, and Y. Saito (2018), Reconstruction of the Electron Diffusion Region of Magnetotail Reconnection Seen by the MMS Spacecraft on 11 July 2017, J. Geophys. Res. Space Physics, https://doi.org/10.1029/2018JA026051.

Genestreti, K., T. Nakamura, R. Nakamura, R. E. Denton, R. Torbert, J. Birch, F. Plaschke, S. Fuselier, R. Ergun, B. Giles, and C. T. Russel (2018), How accurately can we measure the reconnection rate E_M for the MMS diffusion region event of 2017-07-11?, J. Geophys. Res. Space Physics, 123,

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Takahashi, K., R. E. Denton, T. Motoba, A. Matsuoka, Y. Kasaba, Y. Kasahara, M. Teramoto, M. Shoji, N. Takahashi,Y. Miyoshi, M. Nosé, A. Kumamoto, F. Tsuchiya, R. J.
Redmon, and J. V. Rodriguez (2018), Impulsively excited nightside ultralow frequency waves simultaneously observed on and off the magnetic equator, Geophys. Res. Lett., 45, doi:10.1029/2018GL078731

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Ofman, L., R. E. Denton, J. Bortnik, X. An, A. Glocer, and C. Komar (2017), Growth and Nonlinear Saturation of Electromagnetic Ion Cyclotron Waves In Multi-Ion Species Magnetospheric Plasma, J. Geophys. Res. Space Physics, 122, doi:10.1002/2017JA024172.

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