

Refereed publications 2019

Akbari, H., L. Andersson, **D. J. Andrews**, D. M. Malaspina, M. Benna and R. E. Ergun, In situ electron density from active sounding: The influence of the spacecraft wake. *Geophys. Res. Lett.*, 46, 10250-10256, doi:10.1029/2019GL084121, 2019.

Ala-Lahti, M., E. Kilpua, J. Soucek, T. L. Pulkkinen and **A P. Dimmock**, Alfvén ion cyclotron waves in sheath regions driven by interplanetary coronal mass ejections. *J. Geophys. Res.: Space Physics*, 124, 3893-3909, doi:10.1029/2019JA026579, 2019.

Alberti, T., G. Consolini, V. Carbone, **E. Yordanova**, M. F. Marucci and P. De Michelis, Multifractal and chaotic properties of solar wind at MHD and kinetic domains: An empirical mode decomposition approach, *Entropy*, 21, 320, doi:10.3390/e21030320, 2019.

Alm, L., M. André, D. B. Graham, Y. V. Khotyaintsev, A. Vaivads, C. R. Chappel, et al.. MMS observations of multiscale Hall physics in the magnetotail. *Geophys. Res. Lett.*, 46, 10230– 10239. doi:10.1029/2019GL084137, 2019.

Andrews, D. J., S. W. H. Cowley, G. Provan, G. J. Hunt, **L. Z. Hadid, M. W. Morooka, and J.-E. Wahlund**, The structure of planetary period oscillations in Saturn's equatorial magnetosphere: Results from the Cassini mission. *J. Geophys. Res.: Space Physics*, 124, 8361– 8395, doi:10.1029/2019JA026804, 2019.

Archer, W. E., B. Gallardo-Lacourt, G. W. Perry, J.-P. St.-Maurice, **S. C. Buchert** and E. F. Donovan, Steve: The optical signature of intense subauroral ion drifts. *Geophys. Res. Lett.*, 46, 6279-6286. doi:10.1029/2019GL082687, 2019.

Bader, A., G. Stenberg Wieser, **M. André**, M. Wieser, Y. F. Futaana, M. Persson, M., Proton temperature anisotropies in the plasma environment of Venus, *J. Geophys. Res.: Space Physics*, 124, 3312–3330. doi:10.1029/2019JA026619, 2019.

Breuillard, H., P. Henri, L. Bucciantini, M. Volwerk, T. Karlsson, **A. Eriksson, F. Johansson, E. Odelstad**, I. Richter, C. Goetz, X. Vallières and R. Hajra, Properties of the singing comet waves in the 67P/Churyumov-Gerasimenko plasma environment as observed by the Rosetta mission, *Astronomy and Astrophys.*, 630, A39, doi:**10.1051/0004-6361/201834876**, 2019.

Brown, P., U. Auster, **J. E. S. Bergman, J. Fredriksson**, Y. Kasaba, M. Mansour, A. Pollinger, R. Baughen, **M. Berglund**, D. Hercik, H. Misawa, A. Retino, M. Bendyk, W. Magnes, B. Cecconi, M. K. Dougherty, G. Fischer, Meeting the Magnetic EMC Challenges for the In-Situ Field Measurements on the Juice Mission, *Proceedings of 2019 ESA Workshop on Aerospace EMC (Aerospace EMC)*, IEEE, doi: 10.23919/AeroEMC.2019.8788942, 2019.

Burch, J. L., K. Dokgo, K. J. Hwang, R. B. Torbert, **D. B. Graham**, J. M. Webster, R. E. Ergun, B. L. Giles, R. C. Allen, L.-J. Chen, S. Wang, K. J. Genestreti, C. T. Russell,

R. J. Strangeway and O. Le Contell, High-frequency wave generation in magnetotail reconnection: Linear dispersion analysis, *Geophys. Res. Lett.*, 46, 4089-4097, doi:10.1029/2019GL082471, 2019.

Chen, L.-J., S. Wang, M. Hesse, R. E. Ergun, T. Moore, B. Giles, N. Bessho, C. Russell, J. Burch, R. B. Torbert, K. J. Genestreti, W. Paterson, C. Pollock, B. Lavraud, O. Le Contel, R. Strangeway, **Yu. V. Khotyaintsev** and P.-A Lindqvist, Electron diffusion regions in magnetotail reconnection under varying guide fields. *Geophys. Res. Lett.*, 46, 6230– 6238, doi:10.1029/2019GL082393, 2019.

Chen, Z. Z., H. S. Fu, C. M. Liu, T. Y. Wang, R. E. Ergun, G. Cozzani, S. Y. Huang, **Y. V. Khotyaintsev**, O. Le Contel, B. L. Giles and J. L. Burch, Electron-driven dissipation in a tailward flow burst, *Geophys. Res. Lett.*, 46, 5698– 5706, doi:10.1029/2019GL082503, 2019.

Cozzani, G., A. Retinò, F. Califano, A. Alexandrova, O. Le Contel, **Y. Khotyaintsev**, **A. Vaivads**, H. S. Fu, F. Catapano, H. Breuillard, N. Ahmadi, P.-A. Lindqvist, R. E. Ergun, R. B. Torbert, B. L. Giles, C. T. Russell, R. Nakamura, S. Fuselier, B. H. Mauk, T. Moore, and J. L. Burch, In situ spacecraft observations of a structured electron diffusion region during magnetopause reconnection, *Phys. Rev. E*, 043204, doi:10.1103/PhysRevE.99.043204, 2019.

Cravens, T. E., L. Moore, J. H., Jr Waite, R. Perryman, M. Perry, **J.-E. Wahlund**, A. Persoon and W. S. Kurth, The ion composition of Saturn's equatorial ionosphere as observed by Cassini, *Geophys. Res. Lett.*, 45, 6315-6321, doi: 10.1029/2018GL077868, 2019.

Cravens, T. E., **M. Morooka**, A. Renzaglia, L. Moore, J. H. Waite, R. Perryman, M. Perry, **J.-E. Wahlund**, A. Persoon and **L. Hadid**, Plasma transport in Saturn's low-latitude ionosphere: Cassini data. *J. Geophys. Res.: Space Physics*, 124, 4881-4888, doi:10.1029/2018JA026344, 2019

Cui, J., Y.-T. Cao, X.-S. Wu, S.-S. Xu, R. V. Yelle, S. Stone, **E. Vigren**, **N. J. T. Edberg**, C.-L. Shen, F. He and Y. Wei, Evaluating local ionization balance in the nightside Martian upper atmosphere during MAVEN deep dip campaigns, *Astrophys. J. Lett.*, 876, L12, doi:10.3847/2041-8213/ab1b34, 2019.

Deca, J., P. Henri, A. Divin, **A. Eriksson**, M. Galand, A. Beth, K. Ostaszewski, and M. Horányi, Building a weakly outgassing comet from a generalized Ohm's law, *Phys. Rev. Lett.*, 123, 055101, doi:10.1103/PhysRevLett.123.055101, 2019.

Dimmock, A. P., C. T. Russell, R. Z. Sagdeev, V. Krasnoselskikh, S. N. Walker, C. Carr, I. Dandouras, C. P. Escoubet, N. Ganushkina, M. Gedalin, **Y. V. Khotyaintsev**, H. Aryan, T. I. Pulkkinen and M. A. Balikhin, Direct evidence of nonstationary collisionless shocks in space plasmas. *Sci. Adv.* 5, eaau9926, doi:10.1126/sciadv.aau9926, 2019.

Dimmock, A. P., L. Rosenqvist, J.-O. Hall, A. Viljanen, **E. Yordanova**, I. Honkonen, **M. André** and **E. C. Sjöberg**, The GIC and geomagnetic response over Fennoscandia

to the 7–8 September 2017 geomagnetic storm, *Space Weather*, 17, 989–1010, doi:10.1029/2018SW002132, 2019.

Dokgo, K., K.-J. Hwang, J. L. Burch, E. Choi, P. H. Yoon, D. G. Sibeck and **D. B. Graham**, High-frequency wave generation in magnetotail reconnection: Nonlinear harmonics of upper hybrid waves. *Geophys. Res. Lett.*, 46, 7873–7882, doi:10.1029/2019GL083361, 2019.

Dwivedi, N. K., S. Kumar, P. Kovacs, **E. Yordanova**, M. Echim, R. P. Sharma, M. L. Kodachenko and Y. Sasunov, Implication of kinetic Alfvén waves to magnetic field turbulence spectra: Earth’s magnetosheath, *Astrophys. Space Sci.*, 364:101, doi: 10.1007/s10509-019-3592-2, 2019.

Edberg, N. J. T., F. L. Johansson, A. I. Eriksson, D. J. Andrews, R. Hajra, P. Henri, C. S. Wedlund, M. Albo and E. Thiemann, Solar flares observed by Rosetta at comet 67P/Churyumov-Gerasimenko, *Astronomy and Astrophys.*, 630, A49, doi: 10.1051/0004-6361/201834834, 2019.

Edberg, N. J. T., A. I. Eriksson, E. Vigren, F. L. Johansson, C. Goetz, H. Nilsson N. Gilet and P. Henri, The convective electric field influence on the cold plasma and diamagnetic cavity of comet 67P, *Astrophysical Journal*, 158, 71, doi:10.3847/1538-3881/ab2d28, 2019.

Ergun, R. E., S. Hoilijoki, N. Ahmadi, S. J. Schwartz, F. D. Wilder, J. L. Burch, R. B. Torbert, P-A. Lindqvist, **D. B. Graham**, R. J. Strangeway, O. Le Contel, J. C. Holmes, J. E. Stawarz, K. A. Goodrich, S. Eriksson, B. L. Giles, D. Gershman, L. J. Chen, Magnetic reconnection in three dimensions: Observations of electromagnetic drift waves in the adjacent current sheet, *J. Geophys. Res. Space Physics*, 124, 12, 10104–10118, doi: 10.1029/2019JA027228, 2019.

Fadanelli, S., B. Lavraud, F. Califano, C. Jacquay, Y. Vernisse, I. Kacem, E. Penou, D. J. Gershman, J. Dorelli, C. Pollock, B. L. Giles, L. A. Avanov, J. Burch, M. O. Chandler, V. N. Coffey, J. P. Eastwood, R. Ergun, C. J. Farrugia, S. A. Fuselier, V. N. Genot, E. Grigorenko, H. Hasegawa, **Y. Khotyaintsev**, O. Le Contel, A. Marchaudon, T. E. Moore, R. Nakamura, W. R. Paterson, T. Phan, A. C. Rager, C. T. Russell, Y. Saito, J.-A. Sauvaud, C. Schiff, S. E. Smith, S. Toledo-Redondo, R. B. Torbert, S. Wang and S. Yokota, Four-spacecraft measurements of the shape and dimensionality of magnetic structures in the near-Earth plasma environment. *J. Geophys. Res.: Space Physics*, 124, 6850–6868, doi:10.1029/2019JA026747, 2019.

Fu, H. S., Y. Xu, A. Vaivads and Y. V. Khotyaintsev, Super-efficient electron acceleration by an isolated magnetic reconnection, *Astrophys. J. Lett.*, 870, L22, doi:10.3847/2041-8213/aafa75, 2019.

Fu, H. S., J. B. Cao, D. Cao, Z. Wang, **A. Vaivads, Y. V. Khotyaintsev**, J. L. Burch and S. Y. Huang, Evidence of magnetic nulls in electron diffusion region, *Geophys. Res. Lett.*, 46, 48–54, doi:10.1029/2018GL080449, 2019

Fuselier, S. A., K. J. Trattner, S. M. Petrinec, M. H. Denton, S. Toledo-Redondo, S., **M. André**, et al., Mass loading the Earth’s dayside magnetopause boundary layer

and its effect on magnetic reconnection, *Geophys. Res. Lett.*, 46, 6204–6213, doi:10.1029/2019GL082384, 2019.

Fuselier, S. A., K. J. Trattner, S. M. Petrinec, M. H. Denton, S. Toledo-Redondo, **M. André**, N. Aunai, C. R. Chappell, A. Glocer, S. E. Haaland, M. Hesse, L. M. Kistler, B. Lavraud, W. Li, T. E. Moore, **D. Graham, L. Alm**, P. Tenfjord, J. Dargent, S. K. Vines, K. Nykyri, J. L. Burch, R. J. Strangeway, Mass Loading the Earth’s Dayside Magnetopause Boundary Layer and its Effect on Magnetic Reconnection, *Geophys. Res. Lett.*, 46, 12, 6204-6213, doi:10.1029/2019GL082384, 2019.

Gingell, I., S. J. Schwartz, J. P. Eastwood, J. L. Burch, R. E. Ergun, S. Fuselier, D. J. Gershman, B. L. Giles, **Y. V. Khotyaintsev**, B. Lavraud, P.-A. Lindqvist, W. R. Paterson, T. D. Phan, C. T. Russell, J. E. Stawarz, R. J. Strangeway, R. B. Torbert and F. Wilder, Observations of magnetic reconnection in the transition region of quasi-parallel shocks, *Geophys. Res. Lett.*, 46, 1177-1184, doi:10.1029/2018GL081804, 2019.

Goetz, C., B. T. Tsurutani, P. Henri, M. Volwerk, E. Behar, **N. J. T. Edberg, A. Eriksson**, R. Goldstein, P. Mokashi, H. Nilsson, I. Richter, A. Wellbrock and K. H. Glassmeier, *Astronomy and Astrophys.*, 630, A38, Unusually high magnetic fields in the coma of 67P/Churyumov-Gerasimenko during its high-activity phase, doi:10.1051/0004-6361/201833544, 2019.

Goldstein, R., J. L. Burch, K. Llera, P. Mokashi, H. Nilsson, K. Dokgo, **A. Eriksson, E. Odelstad** and I. Richter, Electron acceleration at comet 67P/Churyumov-Gerasimenko, *Astronomy and Astrophys.*, 630, A40, doi:**10.1051/0004-6361/201834701**, 2019.

Goodrich, K. A., R. Ergun, S. J. Schwartz, L. B. Wilson, **A. Johlander**, D. Newman, D. W. Frederick, H. Justin, J. Burch, R. Torbert, **Y. Khotyaintsev**, P.-A. Lindqvist, R. Strangeway, D. Gershman and B. Giles, Impulsively reflected ions: A plausible mechanism for ion acoustic wave growth in collisionless shocks. *J. Geophys. Res.: Space Physics*, 124, 1855– 1865, doi:10.1029/2018JA026436, 2019.

Graham, D. B., Y. V. Khotyaintsev, C. Norgren, **A. Vaivads, M. André**, J. F. Drake, J. Egedal, M. Zhou, O. Le Contel, J. M. Webster, B. Lavraud, I. Kacem, V. Génot, C. Jacquay, A. C. Rager, D. J. Gershman, J. L. Burch and R. E. Ergun, Universality of lower hybrid waves at Earth’s magnetopause. *J. Geophys. Res.: Space Physics*, 124, 8727-8760, doi:10.1029/2019JA027155, 2019.

Hadid L., M. W. Morooka, J.-E. Wahlund, A. M. Persoon, **D. J. Andrews, O. Shebanits**, W. S. Kurth, **E. Vigren, N. J. T. Edberg**, A. F. Nagy and **A. I. Eriksson**, Saturn’s ionosphere: Electron density altitude profiles and D-ring interaction from the Cassini Grand Finale, *Geophys. Res. Lett.*, 45, 9362-9369, doi:10.1029/2018GL078004, 2018. (**Not in 2018 Annual Report list.**)

Hamrin, M., H. Gunell, O. Goncharov, A. De Spiegeleer, S. Fuselier, J. Mukherjee, **A. Vaivads**, T. Pitkänen, R. B. Torbert and B. Giles, Can reconnection be triggered as a solar wind directional discontinuity crosses the bow shock? A case of asymmetric

reconnection. *J. Geophys. Res.: Space Physics*, 124, 8507-8523, doi:10.1029/2019JA027006, 2019.

Hanson, E. L. M., O. V. Agapitov, F. S. Mozer, V. Krasnoselskikh, S. D. Bale, L. Avanov, **Y. Khotyaintsev** and B. Giles, Cross-shock potential in rippled versus planar quasi-perpendicular shocks observed by MMS. *Geophys. Res. Lett.*, 46, 2381– 2389, doi:10.1029/2018GL080240, 2019.

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, Reconstruction of the electron diffusion region of magnetotail reconnection seen by the MMS spacecraft on 11 July 2017, *J. Geophys. Res.: Space Physics*, 124, 122-138, doi:2018JA026051, 2019.

He, J, D. Duan, T. Wang, X. Zhu, W. Li, D. Verscharen, X. Wang, C. Tu, **Y. Khotyaintsev**, G. Le and J. Burch, Direct measurement of the dissipation rate spectrum around ion kinetic scales in space plasma turbulence, *Astrophysical Journal*, 880:121, doi:10.3847/1538-4357/ab2a79, 2019.

Hoilijoki, S., U. Ganse, D. G. Sibeck, P. A. Cassak, L. Turc, M Battarbee, R. C. Fear, X. Blanco-Cano, **A. P. Dimmock**, E. K. J. Kilpua, R. Jarvinen, L. Juusola, Y. Pfau-Kempf and M. Palmroth, Properties of magnetic reconnection and FTEs on the dayside magnetopause with and without positive IMF B_x component during southward IMF. *J. Geophys. Res.: Space Physics*, 124, 4037-4048, doi:10.1029/2019JA026821, 2019.

Huang, S. Y., K. Jiang, Z. G. Yuan, M. Zhou, F. Sahraoui, H. S. Fu, X. H. Deng, **Yu. V. Khotyaintsev**, X. D. Yu, L. H. He, C. J. Pollock, R. B. Torbert and J. L. Burch, Observations of flux ropes with strong energy dissipation in the magnetotail. *Geophys. Res. Lett.*, 46, 580–589, doi:10.1029/2018GL081099, 2019.

Hwang, K.-J., E. Choi, K. Dokgo, J. L. Burch, D. G. Sibeck, B. L. Giles, M. L. Goldstein, W. R. Paterson, C. J. Pollock, Q. Q. Shi, H. Fu, H. Hasegawa, D. J. Gershman, **Y. Khotyaintsev**, R. B. Torbert, R. E. Ergun, C. J. Dorelli, L. Avanov, C. T. Russell and R. J. Strangeway, Electron vorticity indicative of the electron diffusion region of magnetic reconnection, *Geophys. Res. Lett.*, 46, 6287– 6296, doi:10.1029/2019GL082710, 2019.

Khotyaintsev, Yu. V., D. B. Graham, C. Norgren, A. Vaivads, Collisionless magnetic reconnection and waves: Progress review, *Front. Astron. Space Sci.* 6:70, doi:10.3389/fspas.2019.00070, 2019.

Kilpua, E. K. J., D. Fontaine, C. Moissard, M. Ala-Lahti, E. Palmerio, **E. Yordanova**, S. W. Good, M. M. H. Kalliokoski, E. Lumme, A. Osmane, M. Palmroth and L. Turc, Solar wind properties and geospace impact of coronal mass ejection-driven sheath regions: Variation and driver dependence, *Space Weather*, 17, 1257-1280, doi:10.1029/2019SW002217, 2019.

Lakka, A., T. I. Pulkkinen, **A. P. Dimmock**, E. Kilpua, M. Ala-Lahti, I. Honkonen, M. Palmroth, and O. Raukunen, GUMICS-4 analysis of interplanetary coronal mass ejection impact on Earth during low and typical Mach number solar winds, *Ann. Geophys.*, 37, 561–579, doi:10.5194/angeo-37-561-2019, 2019.

Lee, J. H., D. L. Turner, S. Toledo-Redondo, S. K. Vines, R. C. Allen, S. A. Fuselier, **Yu. V. Khotyaintsev**, I. J. Cohen, B. H. Mauk, C. T. Russell, C. J. Pollock, R. E. Ergun, P.-A. L. Lindqvist and J. L. Burch, MMS measurements and modeling of peculiar electromagnetic ion cyclotron waves, *Geophys. Res. Lett.*, 46, 11622–11631, doi:10.1029/2019GL085182, 2019.

Liu, C. M., A. Vaivads, D. B. Graham, Y. V. Khotyaintsev, H. S. Fu, **A. Johlander, M. André** and B. L. Giles, Ion-beam-driven intense electrostatic solitary waves in reconnection jet, *Geophys. Res. Lett.*, 46, 12702–12710, doi:10.1029/2019GL085419, 2019.

Mandt, K. E., **A. Eriksson**, A. Beth, M. Galand and **E. Vigren**, Influence of collisions on ion dynamics in the inner comae of four comets, *Astronomy and Astrophys.*, 630, A48, doi:10.1051/0004-6361/201834828, 2019.

Morooka, M. W., J.-E. Wahlund, L. Z. Hadid, A. I. Eriksson, N. J. T. Edberg, E. Vigren, D. J. Andrews, A. M. Persoon, W. S. Kurth, D. A. Gurnett, W. M. Farrell, J. H. Waite, R. S. Perryman and M. Perry, Saturn's dusty ionosphere. *J. Geophys. Res.: Space Physics*, 124, 1679–1697, doi:10.1029/2018JA026154, 2019.

Mylllys, M., P. Henri, M. Galand, K. L. Heritier, N. Gilet, R. Goldstein, **A. I. Eriksson, F. Johansson** and F. Decca, Plasma properties of suprathermal electrons near comet 67P/Churyumov-Gerasimenko with Rosetta, *Astronomy and Astrophys.*, 630, A42, doi:10.1051/0004-6361/201834964, 2019.

Němec, F., **D. J. Andrews**, D. D. Morgan, A. J. Kopf and D. A. Gurnett, Oblique reflections of Mars Express MARSIS radar signals from ionospheric density structures: Raytracing analysis, *J. Geophys. Res.: Planets*, 124, 1177–1187, doi:10.1029/2018JE005891, 2019.

Němec, F., D. D. Morgan, A. J. Kopf, D. A. Gurnett, D. Pitoňák, C. M. Fowler, **D. J. Andrews** and L. Andersson, Characterizing average electron densities in the Martian dayside upper ionosphere. *J. Geophys. Res.: Planets*, 124, 76–93, doi:10.1029/2018JE005849, 2019.

Osmane, A., **A. P. Dimmock** and T. I. Pulkkinen, Jensen-Shannon complexity and permutation entropy analysis of geomagnetic auroral currents, *J. Geophys. Res.: Space Physics*, 124, 2541–2551, doi:10.1029/2018JA026248, 2019.

Persoon, A. M., W. S. Kurth, D. A. Gurnett, J. B. Groene, A. H. Sulaiman, **J.-E. Wahlund, M. W. Morooka, L. Z. Hadid**, A. F. Nagy, J. H. Waite Jr. and T. E. Cravens, Electron density distributions in Saturn's ionosphere, *Geophys. Res. Lett.*, 46, 30613068, doi:10.1029/2018GL078020, 2019.

Sergeev, V. A., S. V. Apatenkov, R. Nakamura, W. Baumjohann, **Y. V. Khotyaintsev**, K. Kauristie, et al., Substorm-related near-Earth reconnection surge: Combining telescopic and microscopic views. *Geophys. Res. Lett.*, 46, 6239– 6247, doi:10.1029/2019GL083057, 2019.

Sitnov, M., J. Birn, B. Fredousi, E. Gordeev, **Yu. V. Khotyaintsev**, V. Merkin, T. Motoba, A. Otto, E. Panov, P. Pritchett, F. Pucci, J. Raeder, A. Runov, V. Sergeev, M. Velli and X. Zhou, Explosive magnetotail activity, *Space Sci. Rev.*, 215:31, doi:10.1007/s11214-019-0599-5, 2019.

Sorriso-Valvo, L., Filomena Catapano, A. Retinò, O. Le Contel, D. Perrone, O. W. Roberts, J. T. Coburn, V. Panebianco, F. Valentini, S. Perri, A. Greco, F. Malara, V. Carbone, P. Veltri, O. Pezzi, F. Fraternale, F. Di Mare, R. Marino, B. Giles, T. E. Moore, C. T. Russell, R. B. Torbert, J. L. Burch, and **Yu. V. Khotyaintsev**, Turbulence-driven ion beams in the magnetospheric Kelvin-Helmholtz instability, *Phys. Rev. Lett.* 122, 035102, doi:1103/PhysRevLett.122.035102, 2019.

Sorriso-Valvo, L., G. De Vita, F. Fraternale, A. Gurchumelia, S. Perri, G. Nigro, F. Catapano, A. Retinò, C. H. K. Chen, **E. Yordanova**, O. Pezzi, K. Chargazia, O. Kharshiladze, D. Kvaratskhelia, C. L. Vásconez, R. Marino, O. Le Contel, B. Giles, T. E. Moore, R. B. Torbert and J. L. Burch, Sign singularity of the local energy transfer in space plasma turbulence, *Frontiers in Physics*, 7, 108, doi:10.3389/fphy.2019.00108, 2019.

Steinval, K., Yu. V. Khotyaintsev, D. B. Graham, A. Vaivads, P.-A. Lindqvist, C. T. Russell and J. L. Burch, Multispacecraft analysis of electron holes, *Geophys. Res. Lett.*, 46, 55-63, doi:10.1029/2018GL080757, 2019.

Steinval, K, Yu. V. Khotyaintsev, D. B. Graham, A. Vaivads, O. Le Contel and C. T. Russell, Observations of electromagnetic electron holes and evidence of Cherenkov whistler emission, *Phys. Rev. Lett.*, 123 (25), 25510, doi:10.1103/PhysRevLett.123.255101, 2019.

Tang, B.-B., W. Y. Li, **D. B. Graham**, A. C. Rager, C. Wang, **Yu. V. Khotyaintsev**, B. Lavraud, H. Hasegawa, Y.-C. Zhang, L. Dai, B. L. Giles, C. J. Dorelli, C. T. Russell, P.-A. Lindqvist, R. E. Ergun and J. L. Burch, Crescent-shaped electron distributions at the nonreconnecting magnetopause: Magnetospheric multiscale observations, *Geophys. Res. Lett.*, 46, 3024–3032, doi:10.1029/2019GL082231, 2019.

Toledo-Redondo, S., B. Lavraud, S. Fuselier, **M. André, Yu. V. Khotyaintsev**, R. Nakamura, C. P. Escoubet, W. Y. Li, K. Torkar, F. Cipriani, A. Barrie, B. Giles, T. E. Moore, D. Gershman, P.-A. Lindqvist, R. E. Ergun, C. T. Russell and J. L. Burch, Electrostatic spacecraft potential structure and wake formation effects for characterization of cold ion beams in the Earth’s magnetosphere, *J. Geophys. Res.: Space Physics*, 124, 10048-10062, doi:10.1029/2019JA027145, 2019.

Trenchi, L., J. C. Coxon, R. C. Fear, J. P. Eastwood, M. W. Dunlop, K. J. Trattner, D. J. Gershman, **D. B. Graham, Yu Khotyaintsev** and B. Lavraud, Signatures of magnetic separatrices at the borders of a crater flux transfer event connected to an

active X-line, *J. Geophys. Res.: Space Physics*, 124, 8600-8616, doi:10.1029/2018JA026126, 2019.

Vigren, E. and J. Cui, Electron temperatures in the dayside ionosphere of Mars derived from O₂⁺ chemistry, *Astrophys. J.*, 887, 177, doi:10.3847/1538-4357/ab53db, 2019.

Vigren, E. and A. I. Eriksson, On the ion-neutral coupling in cometary comae, *Month. Not. R. Astron. Soc.*, 482, 1937–1941, doi: 10.1093/mnras/sty2869, 2019.

Vigren, E., N. J. T. Edberg, A. I. Eriksson, M. Galand, P. Henri, F. L. Johansson, E. Odelstad, M. Rubin and X. Vallières, The evolution of the electron number density in the coma of comet 67P at the location of Rosetta from 2015 November through 2016 March, *Astrophys. J.*, 881, 6, doi:10.3847/1538-4357/ab29f7, 2019.

Volwerk, M., C. Goetz, E. Behar, M. Delva, **N. J. T. Edberg, A. I. Eriksson**, P. Henri, K. Llera, H. Nilsson, I. Richter, G. Stenberg Wieser and K.-H. Glassmeier, Dynamic field line draping at comet 67P/Churyumov-Gerasimenko during the Rosetta dayside excursion, *Astronomy and Astrophys.*, 630, A44, doi:10.1051/0004-6361/201935517, 2019.

Vörös, Z., **E. Yordanova, D. B. Graham, Y. V. Khotyaintsev**, and Y. Narita, MMS observations of whistler and lower hybrid drift waves associated with magnetic reconnection in the turbulent magnetosheath, *J. Geophys. Res.: Space Physics*, 124, 8551-8563, doi:10.1029/2019JA027028, 2019.

Vörös Z., **E. Yordanova, Y. V. Khotyaintsev**, A. Varsani and Y. Narita, Energy conversion at kinetic scales in the turbulent magnetosheath. *Front. Astron. Space Sci.* 6:60, doi:10.3389/fspas.2019.00060, 2019.

Wang, T., O. Alexandrova, D. Perrone, M. Dunlop, X. Dong, R. Bingham, **Yu. V. Khotyaintsev**, C. T. Russell, B. L. Giles, R. B. Torbert, R. E. Ergun and J. L. Burch, Magnetospheric Multiscale observation of kinetic signatures in the Alfvén vortex, *Astrophys. J. Lett.*, 871, L22, doi:10.3847/2041-8213/aafe0d, 2019.

Werner, A. L. E., **E. Yordanova, A. P. Dimmock** and M. Temmer, Modeling the multiple CME interaction event on 6–9 September 2017 with WSA-ENLIL+Cone, *Space Weather*, 17, doi:10.1029/2018SW001993, 2019.

Wu, X.-S., J. Cui, S. S. Xu, R. J. Lillis, R. V. Yelle, **N. J. T. Edberg, E. Vigren, Z.-J. Rong, K. Fan, J.-P. Guo, Y.-T. Cao, F.-Y. Jiang, Y. Wei and D. L. Mitchell**, The morphology of the topside Martian ionosphere: Implications on bulk ion flow. *J. Geophys. Res.: Planets*, 124, 734-751, doi:10.1029/2018JE005895, 2019.

Zhang, L. Q., W. Baumjohann, L. Dai, **Y. V. Khotyaintsev**, and C. Wang, Measurements of the vorticity in the bursty bulk flows. *Geophysical Res. Lett.*, 46, 10322–10329, doi:10.1029/2019GL084597, 2019.

Zhao, J. T. Wang, C., Shi, **D. B. Graham**, M. W. Dunlop, J. He, B. T. Tsurutani, and D. Wu, Ion and electron dynamics in the presence of Mirror, Electromagnetic Ion

Cyclotron, and Whistler waves, *Astrophysical Journal*, 883, 185, doi:10.3847/1538-4357/ab3bd1, 2019.

Zhong, Z. H., X. H. Deng, M. Zhou, W. Q. Ma, R. X. Tang, **Y. V. Khotyaintsev**, B. L. Giles, C. T. Russell and J. L. Burch, Energy conversion and dissipation at dipolarization fronts: a statistical overview. *Geophys. Res. Lett.*, 46. doi:10.1029/2019GL085409, 2019.

Zhou, M., H. Y. Man, Z. H. Zhong, X. H. Deng, Y. Pang, S. Y. Huang, **Y. Khotyaintsev**, C. T. Russell and B. Giles, Sub-ion-scale dynamics of the ion diffusion region in the magnetotail: MMS observations, *J. Geophys. Res.: Space Physics*, 124, 7898–7911, doi:10.1029/2019JA026817, 2019.

Zhou, M., J. Huang, H. Y. Man, X. H. Deng, Z. H. Zhong, C. T. Russell, W. R. Paterson, B. L. Giles, P.-A. Lindqvist, **Y. V. Khotyaintsev** and J. L. Burch, Electron-scale vertical current sheets in a bursty bulk flow in the Terrestrial magnetotail, *Astrophysical Journal Letters*, 872:L26, doi:10.3847/2041-8213/ab0424, 2019.

Zhou, M., X. H. Deng, Z. H. Zhong, Y. Pang, R. X. Tang, M. El-Alaoui, R. J. Walker, C. T. Russell, G. Lapenta, R. J. Strangeway, R. B. Torbert, J. L. Burch, W. R. Paterson, B. L. Giles, **Y. V. Khotyaintsev**, R. E. Ergun and P.-A. Lindqvist, Observations of an electron diffusion region in symmetric reconnection with weak guide field, *Astrophysical Journal*, 870:34, doi:10.3847/1538-4357/aaf16f

Øieroset, M., T. D. Phan, J. F. Drake, J. P. Eastwood, S. A. Fuselier, R. J. Strangeway, C. Haggerty, M. A. Shay, M. Oka, S. Wang, L.-J. Chen, I. Kacem, B. Lavraud, V. Angelopoulos, J. L. Burch, R. B. Torbert, R. E. Ergun, **Y. Khotyaintsev**, Y. Saito, L. A. Avanov and W. Paterson, Reconnection with magnetic flux pileup at the interface of converging jets at the magnetopause, *Geophys. Res. Lett.*, 46, 1937-1946, doi:10.1029/2018GL080994, 2019.

PhD thesis 2019

Johlander, Andreas, Ion dynamics and structure of collisionless shocks in space, *PhD thesis*, Uppsala university, Acta Universitatis Upsaliensis, ISBN: 978-91-513-0519-6, 2019.

Licentiate theses 2019

Steinvall, Konrad, Multi-spacecraft studies of electron holes in space plasmas, *Licentiate thesis*, Department of Physics and Astronomy, Uppsala university, 2019.

Johansson, Fredrik Leffe, Observations of plasma and dust around comet 67P by Rosetta, *Licentiate thesis*, Department of Physics and Astronomy, Uppsala university, 2019.

Undergraduate Diploma theses 2019 (examensarbeten och projektarbeten) (Supervisor from IRF)

Skan, Moa, Reconstructing ICMEs with the toroidal Grad-Shafranov method, *Undergraduate Diploma thesis, Uppsala university and Swedish Institute of Space Physics*, 2019.

Smith, Kellen, Interpreting density enhancement of coronal mass ejections, *Undergraduate Diploma thesis, Uppsala university and Swedish Institute of Space Physics*, 2019.

Dogurevich, Pavel, Kinetic simulation of spherically symmetric collisionless plasma in the inner part of a cometary coma, *Undergraduate Diploma thesis, Uppsala university and Swedish Institute of Space Physics*, 2019.