

Jonathan Squire

Curriculum Vitae

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Academic positions

- 2022– **Senior Research Fellow above the bar**, *University of Otago*, New Zealand
- 2018– **Rutherford Discovery Research Fellow**, *University of Otago*, New Zealand
- 2015–2018 **Sherman Fairchild Postdoctoral Fellow**, *Caltech*, USA

Education

- Sep 2015 **PhD**, *Princeton University*, USA, (Advisor: A. Bhattacharjee)
- May 2012 **MA**, *Princeton University*, USA, (Advisor: H. Qin)
- Nov 2009 **BSc(Hons)**, *Otago University*, New Zealand

Honors, Awards, and Scholarships

- 2022 **Thomas H. Stix Award for Outstanding Early Career Contributions to Plasma Physics Research**, *American Physical Society Division of Plasma Physics*
- 2022 **Outstanding Early-Career Researcher, Division of Sciences**, *University of Otago*
- 2018 **Rutherford Discovery Fellowship**, *Royal Society Te Apārangi*, New Zealand
- 2017 **Marshall N. Rosenbluth Outstanding Doctoral Thesis Award**, *American Physical Society Division of Plasma Physics*
- 2015 **Sherman Fairchild Postdoctoral Fellowship**, *Walter Burke Institute for Theoretical Physics*, Caltech
- 2014 **Charlotte Elizabeth Procter Honoric Fellowship**, *Princeton University*
- 2010–2013 **International Fulbright Science and Technology Fellowship**
Three years of funding for US PhD study (approximately 40 awards annually worldwide).
- 2009 **Prince of Wales Prize**, *Otago University*
Awarded annually to top undergraduate student.
- 2008 **Prestige Scholarship in Science**, *Otago University*
- 2005 **First place in NCEA scholarship examinations - Physics**, *New Zealand*

Funding and Grants

- 2022 **Marsden Fund Grant**, *Royal Society Te Apārangi*, New Zealand
A theory for coronal heating through turbulence mediated by the helicity barrier (PI: Value, NZ\$937,000)
- 2018 **Rutherford Discovery Fellowship**, *Royal Society Te Apārangi*, New Zealand
Cosmic Turbulence, Microinstabilities, and the Magnetisation of the Universe (PI: Value, NZ\$800,000).
- 2017 **Marsden Fund Fast-Start Grant**, *Royal Society Te Apārangi*, New Zealand
The small scales call the shots: the effect of microinstabilities on collisionless cosmic fluids (PI: Value, NZ\$300,000)
- 2016– **Computational Project Awards**
Xsede USA (~12 MSUs as PI; ~25 MSUs as AI); NeSI New Zealand (~3 MSUs as PI); LRAC Frontera USA (~150 MSUs hours as AI). [MSU ≈ million CPU hours.]

Selected Conference, Seminar, and Collaboration Activity

- 2024 Lead co-ordinator for KITP program “Kinetic theory of plasmas and self-gravitating systems” (proposal accepted).
- 2022 Topical Plenary at Asia Pacific Physical Societies Plasma Physics meeting, Zoom.
- 2016-17, '22 Invited talks at the APS Division of Plasma Physics Fall meeting, USA.
- 2022 Invited & funded participant for program “Magnetic Field Evolution in Low Density or Strongly Stratified Plasmas”, Stockholm, Sweden.
- 2020,2021 Invited professorship with honorarium at University of Toulouse, France (host F. Rincon). (*cancelled due to COVID travel restrictions*)
- 2020– (postponed) Invitation to be distinguished visitor at the Nordic Institute for Theoretical Physics, Sweden (host A. Brandenburg). (*Postponed due to COVID travel restrictions*)
- 2020, '21 Invited talks at Parker Solar Probe Science Working Group meetings, Zoom.
- 2020 Invited talk at the “Planetesimal Formation Meeting,” Zoom.
- 2020 Invited talk at “The Building Blocks of Planets” (Zoom, scheduled Ringberg, Germany).
- 2019 Invited participant for the KITP program “Multiscale Phenomena in Plasma Astrophysics.” *Fully funded accommodation; I attended for six weeks of the ten-week program.*
- 2019 Invited talk at “Connecting Micro and Macro Scales: Acceleration, Reconnection, and Dissipation in Astrophysical Plasmas,” KITP Santa Barbara, USA.
- 2019 Invited talk for American Geophysical Union annual meeting.
- 2016– Invited participant, Plasma Kinetics Working Group meeting, Vienna, Austria.
- 2019 Invited talk at “Theoretical and Computational Challenges in Planet Formation” workshop, CCA, New York, USA.

Invited seminar activity includes colloquia at Journal of Plasma Physics (2021 Zoom), McGill, Canada (2020 Zoom), and IRAP, France (2020 Zoom); seminars at UT Austin, PPPL, Oxford, Princeton, UC Berkeley, Nordita, UC Santa Barbara, Caltech, Auckland, Waitkato, AUT, Victoria U. Wellington.

Academic Service, Committees, & Outreach

- 2022– Elected Vice Chair of the American Physical Society Topical Group on Plasma Astrophysics (GPAP; rolls over to Chair Elect 2023, then Chair in 2024).
- 2021– Moderator for `physics.plasm-ph` section of `arXiv.org` (with G. Hammett).
- 2021– Member of the New Zealand COSPAR (Committee on Space Research) national committee.
- 2020 NASA Planetary Physics Grant Review write-in reviewer.
- 2019– Founder and organizer of the “Otago Scholarship Physics” Facebook page (*weekly posting of advanced high-school level physics problems with detailed solutions*)
- 2019– Member of Outreach and Recruitment Committee, Otago
- 2019 NASA Heliophysics Grant Review Panel member.
- 2017–2019 Elected “Committee member at large” for the Topical Group in Plasma Astrophysics (GPAP) of the American Physical Society.
- 2017– Public outreach talks given to high schools & community groups, on a range of astronomy subjects.
- 2016–2017 Member of theoretical astrophysics seminar committee, Caltech.
- 2016–2018 Member of Caltech astronomy outreach; co-organized Caltech’s solar eclipse event that attracted over 3000 people.
- 2014–2015 Chair of PPPL graduate student committee.

Popular articles featuring our work; about the helicity barrier and coronal heating from numerous

outlets, including the [American Geophysical Union](#), the [ABC](#), Radio NZ, [CNET](#), and [local newspapers](#); about switchbacks from [NASA Outreach](#), and dust instabilities from [Scientific American](#).

Media appearances on TV and Radio NZ discussing 2022 fusion-energy breakthrough. I published an opinion piece for [newsroom.co.nz](#) on the same subject.

Various outreach- and high-school-level seminars on astronomy and astrophysics, including the PCSHS Seminar program (90 minute lecture on solar physics to approximately 300 Thai high-school students), for Hands On Otago and the Sciences Academy (2023), and to Logan Park High School and the Dunedin Astronomical Society.

Referee for Phys. Rev. Lett. (15 articles), Mon. Not. Royal Astron. Soc. (11 articles), J. Plasma Phys. (11 articles), Astrophys. J. (13 articles), Astron. Astro. (4 articles), Nature Astron. (1 article), Nature Comm. (1 article), Phys. Plasmas (8 articles), Phys. Rev. X (1 article), Phys. Rev. Research (1 paper), Proc. Royal Soc. A (1 article), Proc. Nat. Acad. Sci. (1 article), Comp. Phys. Comm. (2 articles), Phys. Rev. E (2 articles), J. Fluid Mech. (1 article), Frontiers (3 articles)

Teaching

- 2020, '21, '22 Co-teach (~40%) PHSI331, Quantum Mechanics (12–13 lectures, 4–5 workshops & tutorials).
- 2018, '19, '20, '21 Co-teach (~50%) PHSI170, Introduction to Astronomy (12 lectures, 6 labs & tutorials).
- 2013, '14 Teaching Assistant, Graduate Plasma Physics Laboratory, Princeton

Thesis students and postdoctoral advisees

(Formal supervision in bold; informal collaboration/co-supervision in normal font)

- 2019– **Zade Johnston**, Otago (Honours, Masters, PhD ongoing)
- 2019– **Ryan Davis**, Otago (Honours, Masters ongoing) → *analyst at FNZ, Wellington*
- 2021– **Sam Balcher**, Otago (Masters ongoing)
- 2021– **Harrison Devane**, Otago (Honours ongoing)
- 2022– **Jayvan Lui**, Otago (Honours ongoing)
- 2021– Jesse Coburn (adv. C. Chen), Queen Mary (PhD ongoing)
- 2021– Stephen Majeski (adv. M. Kunz). Princeton (PhD ongoing)
- 2019– Valentin Skoutnev (adv. A. Bhattacharjee), Princeton (PhD ongoing)
- 2019– Philipp Kempfski (adv. E. Quataert), UC Berkeley (PhD ongoing)
- 2021 **Chris Hill**, Otago (Honours) → *analyst at PWC, Wellington*
- 2018–2019 Denis St-Onge (adv. M. Kunz). Princeton (PhD) → *postdoc at Oxford*
- 2017–2018 Eric Moseley (co-adv. P. Hopkins), Caltech (senior thesis)
- 2016– Supervised/co-supervised seven summer studentships
- 2019–2021 **Romain Meyrand** postdoctoral fellow, Otago → *now Research Fellow, Otago*

Publications

1. **J. Squire**, R. Meyrand, and M. W. Kunz. “Electron-ion heating partition in imbalanced solar-wind turbulence”. *Astrophys. J. Lett.*, under review (2023), arXiv:2308.13048.
2. R. Meyrand, **J. Squire**, A. Mallet, and B. D. G. Chandran. “Reflection-driven turbulence in the super-Alfvénic solar wind”. *Astrophys. J.*, under review (2023), arXiv:2308.10389.
3. T. A. Bowen, S. D. Bale, B. D. G. Chandran, A. Chasapis, C. H. K. Chen, T. Dudok de Wit, A. Mallet, R. Meyrand, and **J. Squire**. “Mediation of Collisionless Turbulent Dissipation Through Cyclotron Resonance”. *Nature Astronomy*, accepted (2023), arXiv:2306.04881.

4. **J. Squire**, M. W. Kunz, L. Arzamasskiy, Z. Johnston, E. Quataert, and A. A. Schekochihin. “Pressure anisotropy and viscous heating in weakly collisional plasma turbulence”. *J. Plasma Phys.* **89.4** (2023), 905890417.
5. S. Majeski, M. W. Kunz, and **J. Squire**. “Microphysically modified magnetosonic modes in collisionless, high- β plasmas”. *J. Plasma Phys.* **89.3** (2023), 905890303.
6. L. Arzamasskiy, M. W. Kunz, **J. Squire**, E. Quataert, and A. A. Schekochihin. “Kinetic Turbulence in Collisionless High- β Plasmas”. *Phys. Rev. X* **13.2** (2023), 021014.
7. N. E. Raouafi, L. Matteini, **J. Squire**, et al. “Parker Solar Probe: Four Years of Discoveries at Solar Cycle Minimum”. *Space Sci. Rev.* **219.1** (2023), 8.
8. P. Kempfski, E. Quataert, and **J. Squire**. “A new buoyancy instability in galaxy clusters due to streaming cosmic rays”. *Mon. Not. R. Astron. Soc.* **524.2** (2023), 1893–1908.
9. **J. Squire** and A. Mallet. “On the construction of general large-amplitude spherically polarised Alfvén waves”. *J. Plasma Phys. Lett.* **88.5** (2022), 175880503.
10. **J. Squire**, Z. Johnston, A. Mallet, and R. Meyrand. “On the properties of Alfvénic switchbacks in the expanding solar wind: The influence of the Parker spiral”. *Phys. Plasmas* **29.11** (2022), 112903.
11. Z. Johnston, **J. Squire**, A. Mallet, and R. Meyrand. “On the properties of Alfvénic switchbacks in the expanding solar wind: Three-dimensional numerical simulations”. *Phys. Plasmas* **29.7** (2022), 072902.
12. J. T. Coburn, C. H. K. Chen, and **J. Squire**. “A Measurement of the Effective Mean-Free-Path of Solar Wind Protons”. *J. Plasma Phys. Lett.* **88.5** (2022), 175880502.
13. T. A. Bowen, B. Chandran, **J. Squire**, S. D. Bale, D. Duan, K. G. Klein, D. Larson, A. Mallet, M. D. McManus, R. Meyrand, J. L. Verniero, and L. D. Woodham. “In Situ Signature of Cyclotron Resonant Heating in the Solar Wind”. *Phys. Rev. Lett.* **129** (2022), 165101.
14. V. Skoutnev, **J. Squire**, and A. Bhattacharjee. “On large-scale dynamos with stable stratification and the application to stellar radiative zones”. *Mon. Not. R. Astron. Soc.* **517.1** (2022), 526–542.
15. G. Lesur, B. Ercolano, M. Flock, M.-K. Lin, C.-C. Yang, J. A. Barranco, P. Benitez-Llambay, J. Goodman, A. Johansen, H. Klahr, G. Laibe, W. Lyra, P. Marcus, R. P. Nelson, **J. Squire**, J. B. Simon, N. Turner, O. M. Umurhan, and A. N. Youdin. “Hydro-, Magneto-hydro-, and Dust-Gas Dynamics of Protoplanetary Disks”. *Protostars & Planets VII*, to appear (2022), arXiv:2203.09821.
16. S. Ji, **J. Squire**, and P. F. Hopkins. “Numerical Study of Cosmic Ray Confinement through Dust Resonant Drag Instabilities”. *Mon. Not. R. Astron. Soc.* **513** (2022), 282–295.
17. P. F. Hopkins, **J. Squire**, I. S. Butsky, and S. Ji. “Standard Self-Confinement and Extrinsic Turbulence Models for Cosmic Ray Transport are Fundamentally Incompatible with Observations”. *Mon. Not. R. Astron. Soc.*, in press (2021), arXiv:2112.02153.
18. **J. Squire**, R. Meyrand, M. W. Kunz, L. Arzamasskiy, A. A. Schekochihin, and E. Quataert. “High-frequency heating of the solar wind triggered by low-frequency turbulence”. *Nature Astronomy* **6** (2022), 715–723.
19. U. P. Steinwandel, A. A. Kaurov, P. F. Hopkins, and **J. Squire**. “On the optical properties of resonant drag instabilities: variability of asymptotic giant branch and R Coronae Borealis stars”. *Mon. Not. R. Astron. Soc.* **515.4** (2022), 4797–4809.
20. A. F. A. Bott, L. Arzamasskiy, M. W. Kunz, E. Quataert, and **J. Squire**. “Adaptive Critical Balance and Firehose Instability in an Expanding, Turbulent, Collisionless Plasma”. *Astrophys. J. Lett.* **922.2** (2021), L35.
21. **J. Squire**, S. Moroianu, and P. F. Hopkins. “The acoustic resonant drag instability with a spectrum of grain sizes”. *Mon. Not. R. Astron. Soc.* **510.1** (2022), 110–130.

22. S. D. Bale, T. S. Horbury, M. Velli, M. I. Desai, J. S. Halekas, M. D. McManus, O. Panasenco, S. T. Badman, T. A. Bowen, B. D. G. Chandran, J. F. Drake, J. C. Kasper, R. Laker, A. Mallet, L. Matteini, T. D. Phan, N. E. Raouafi, **J. Squire**, L. D. Woodham, and T. Woolley. “A Solar Source of Alfvénic Magnetic Field Switchbacks: In Situ Remnants of Magnetic Funnel on Supergranulation Scales”. *Astrophys. J.* **923.2** (2021), 174.
23. P. F. Hopkins, A. L. Rosen, **J. Squire**, G. V. Panopoulou, N. H. Soliman, D. Seligman, and U. P. Steinwandel. “Dust in the wind with resonant drag instabilities - I. The dynamics of dust-driven outflows in GMCs and H II regions”. *Mon. Not. R. Astron. Soc.* **517.1** (2022), 1491–1517.
24. A. Mallet, **J. Squire**, B. D. G. Chandran, T. Bowen, and S. D. Bale. “Evolution of Large-amplitude Alfvén Waves and Generation of Switchbacks in the Expanding Solar Wind”. *Astrophys. J.* **918.2** (2021), 62.
25. P. F. Hopkins, **J. Squire**, and I. S. Butsky. “A consistent reduced-speed-of-light formulation of cosmic ray transport valid in weak- and strong-scattering regimes”. *Mon. Not. R. Astron. Soc.* **509.3** (2022), 3779–3797.
26. R. Meyrand, **J. Squire**, A. A. Schekochihin, and W. Dorland. “On the violation of the zeroth law of turbulence in space plasmas”. *J. Plasma Phys.* **87.3** (2021), 535870301.
27. **J. Squire**, P. F. Hopkins, E. Quataert, and P. Kempski. “The impact of astrophysical dust grains on the confinement of cosmic rays”. *Mon. Not. R. Astron. Soc.* **502.2** (2021), 2630–2644.
28. V. Skoutnev, **J. Squire**, and A. Bhattacharjee. “Small-scale Dynamo in Stably Stratified Turbulence”. *Astrophys. J.* **906.1** (2021), 61.
29. P. F. Hopkins, **J. Squire**, T. K. Chan, E. Quataert, S. Ji, D. Kereš, and C.-A. Faucher-Giguère. “Testing physical models for cosmic ray transport coefficients on galactic scales: self-confinement and extrinsic turbulence at \sim GeV energies”. *Mon. Not. R. Astron. Soc.* **501.3** (2021), 4184–4213.
30. P. F. Hopkins, T. K. Chan, **J. Squire**, E. Quataert, S. Ji, D. Kereš, and C.-A. Faucher-Giguère. “Effects of different cosmic ray transport models on galaxy formation”. *Mon. Not. R. Astron. Soc.* **501.3** (2021), 3663–3669.
31. M. W. Kunz, **J. Squire**, A. A. Schekochihin, and E. Quataert. “Self-sustaining sound in collisionless, high- β plasma”. *J. Plasma Phys.* **86.6** (2020), 905860603.
32. J. W. Burby and **J. Squire**. “General formulas for adiabatic invariants in nearly-periodic Hamiltonian systems”. *J. Plasma Phys.* **86.6** (2020), 835860601.
33. D. A. St-Onge, M. W. Kunz, **J. Squire**, and A. A. Schekochihin. “Fluctuation dynamo in a weakly collisional plasma”. *J. Plasma Phys.* **86.5** (2020), 905860503.
34. **J. Squire** and P. F. Hopkins. “Physical models of streaming instabilities in protoplanetary discs”. *Mon. Not. R. Astron. Soc.* **498.1** (2020), 1239–1251.
35. **J. Squire**, B. D. G. Chandran, and R. Meyrand. “In-situ Switchback Formation in the Expanding Solar Wind”. *Astrophys. J. Lett.* **891.1** (2020), L2.
36. P. Kempski, E. Quataert, and **J. Squire**. “Sound-wave instabilities in dilute plasmas with cosmic rays: implications for cosmic ray confinement and the Perseus X-ray ripples”. *Mon. Not. R. Astron. Soc.* **493.4** (2020), 5323–5335.
37. Z. Li, P. F. Hopkins, **J. Squire**, and C. Hummels. “On the survival of cool clouds in the circumgalactic medium”. *Mon. Not. R. Astron. Soc.* **492.2** (2020), 1841–1854.
38. P. F. Hopkins, **J. Squire**, and D. Seligman. “Simulating diverse instabilities of dust in magnetized gas”. *Mon. Not. R. Astron. Soc.* **496.2** (2020), 2123–2154.
39. P. Kempski, E. Quataert, **J. Squire**, and M. W. Kunz. “Shearing-box simulations of MRI-driven turbulence in weakly collisional accretion discs”. *Mon. Not. R. Astron. Soc.* **486.3** (2019), 4013–4029.
40. **J. Squire**, A. A. Schekochihin, E. Quataert, and M. W. Kunz. “Magneto-immutable turbulence in weakly collisional plasmas”. *J. Plasma Phys.* **85.1** (2019), 905850114.

41. M. W. Kunz, **J. Squire**, et al. “The Material Properties of Weakly Collisional, High-Beta Plasmas”. *White paper submission to Plasma 2020 Decadal Review* (2020).
42. D. Seligman, P. F. Hopkins, and **J. Squire**. “Non-linear evolution of the resonant drag instability in magnetized gas”. *Mon. Not. R. Astron. Soc.* **485.3** (2019), 3991–3998.
43. E. R. Moseley, **J. Squire**, and P. F. Hopkins. “Non-linear evolution of instabilities between dust and sound waves”. *Mon. Not. R. Astron. Soc.* **489.1** (2019), 325–338.
44. M. J. Burin, K. J. Caspary, E. M. Edlund, R. Ezeta, E. P. Gilson, H. Ji, M. McNulty, **J. Squire**, and G. R. Tynan. “Turbulence and jet-driven zonal flows: Secondary circulation in rotating fluids due to asymmetric forcing”. *Phys. Rev. E* **99.2** (2019), 023108.
45. T. G. White, M. T. Oliver, P. Mabey, M. Kühn-Kauffeldt, A. F. A. Bott, L. N. K. Döhl, A. R. Bell, R. Bingham, R. Clarke, J. Foster, G. Giacinti, P. Graham, R. Heathcote, M. Koenig, Y. Kuramitsu, D. Q. Lamb, J. Meinecke, T. Michel, F. Miniati, M. Notley, B. Reville, D. Ryu, S. Sarkar, Y. Sakawa, M. P. Selwood, **J. Squire**, R. H. H. Scott, P. Tzeferacos, N. Woolsey, A. A. Schekochihin, and G. Gregori. “Supersonic plasma turbulence in the laboratory”. *Nature Communications* **10** (2019), 1758.
46. P. F. Hopkins and **J. Squire**. “Ubiquitous instabilities of dust moving in magnetized gas”. *Mon. Not. R. Astron. Soc.* **479.4** (2018), 4681–4719.
47. **J. Squire** and P. F. Hopkins. “Resonant drag instabilities in protoplanetary discs: the streaming instability and new, faster growing instabilities”. *Mon. Not. R. Astron. Soc.* **477.4** (2018), 5011–5040.
48. P. F. Hopkins and **J. Squire**. “The resonant drag instability (RDI): acoustic modes”. *Mon. Not. R. Astron. Soc.* **480.2** (2018), 2813–2838.
49. **J. Squire** and P. F. Hopkins. “Resonant Drag Instability of Grains Streaming in Fluids”. *Astrophys. J. Lett.* **856.1** (2018), L15.
50. **J. Squire**, E. Quataert, and M. W. Kunz. “Pressure-anisotropy-induced nonlinearities in the kinetic magnetorotational instability”. *J. Plasma Phys.* **83.6** (2017), 905830613.
51. **J. Squire**, M. W. Kunz, E. Quataert, and A. A. Schekochihin. “Kinetic Simulations of the Interruption of Large-Amplitude Shear-Alfvén Waves in a High- β Plasma”. *Phys. Rev. Lett.* **119.15** (2017), 155101.
52. **J. Squire** and P. F. Hopkins. “The distribution of density in supersonic turbulence”. *Mon. Not. R. Astron. Soc.* **471.3** (2017), 3753–3767.
53. **J. Squire**, A. A. Schekochihin, and E. Quataert. “Amplitude limits and nonlinear damping of shear-Alfvén waves in high-beta low-collisionality plasmas”. *New J. Phys.* **19.5** (2017), 055005.
54. H. Lee, P. F. Hopkins, and **J. Squire**. “The dynamics of charged dust in magnetized molecular clouds”. *Mon. Not. R. Astron. Soc.* **469.3** (2017), 3532–3540.
55. M. J. Colbrook, X. Ma, P. F. Hopkins, and **J. Squire**. “Scaling laws of passive-scalar diffusion in the interstellar medium”. *Mon. Not. R. Astron. Soc.* **467.2** (2017), 2421–2429.
56. **J. Squire**, E. Quataert, and A. A. Schekochihin. “A Stringent Limit on the Amplitude of Alfvénic Perturbations in High-beta Low-collisionality Plasmas”. *Astrophys. J. Lett.* **830.2** (2016), L25.
57. **J. Squire** and A. Bhattacharjee. “The magnetic shear-current effect: generation of large-scale magnetic fields by the small-scale dynamo”. *J. Plasma Phys.* **82.2** (2016), 535820201.
58. **J. Squire** and A. Bhattacharjee. “Electromotive force due to magnetohydrodynamic fluctuations in sheared rotating turbulence”. *Phys. Rev. E* **92.5** (2015), 053101.
59. **J. Squire** and A. Bhattacharjee. “Coherent Nonhelical Shear Dynamos Driven by Magnetic Fluctuations at Low Reynolds Numbers”. *Astrophys. J.* **813.1** (2015), 52.
60. **J. Squire** and A. Bhattacharjee. “Generation of Large-Scale Magnetic Fields by Small-Scale Dynamo in Shear Flows”. *Phys. Rev. Lett.* **115.17** (2015), 175003.

61. **J. Squire** and A. Bhattacharjee. “Statistical Simulation of the Magnetorotational Dynamo”. *Phys. Rev. Lett.* **114.8** (2015), 085002.
62. **J. Squire** and A. Bhattacharjee. “Magnetorotational Instability: Nonmodal Growth and the Relationship of Global Modes to the Shearing Box”. *Astrophys. J.* **797.1** (2014), 67.
63. **J. Squire** and A. Bhattacharjee. “Nonmodal Growth of the Magnetorotational Instability”. *Phys. Rev. Lett.* **113.2** (2014), 025006.
64. F. I. Parra, I. Calvo, J. W. Burby, **J. Squire**, and H. Qin. “Equivalence of two independent calculations of the higher order guiding center Lagrangian”. *Phys. Plasmas* **21.10** (2014), 104506.
65. **J. Squire**, J. Burby, and H. Qin. “VEST: Abstract vector calculus simplification in Mathematica”. *Comp. Phys. Comm.* **185.1** (2014), 128–135.
66. J. W. Burby, **J. Squire**, and H. Qin. “Automation of the guiding center expansion”. *Phys. Plasmas* **20.7** (2013), 072105.
67. **J. Squire**, H. Qin, W. M. Tang, and C. Chandre. “The Hamiltonian structure and Euler-Poincaré formulation of the Vlasov-Maxwell and gyrokinetic systems”. *Phys. Plasmas* **20.2** (2013), 022501.
68. J. C. Schmitt, T. Abrams, L. R. Baylor, L. Berzak Hopkins, T. Biewer, D. Bohler, D. Boyle, E. Granstedt, T. Gray, J. Hare, C. M. Jacobson, M. Jaworski, R. Kaita, T. Kozub, B. LeBlanc, D. P. Lundberg, M. Lucia, R. Maingi, R. Majeski, E. Merino, A. Ryou, E. Shi, **J. Squire**, D. Stotler, C. E. Thomas, K. Tritz, and L. Zakharov. “Results and future plans of the Lithium Tokamak eXperiment (LTX)”. *J. Nuclear Materials* **438** (2013), S1096–S1099.
69. H. Qin, W. Liu, H. Li, and **J. Squire**. “Woltjer-Taylor State without Taylor’s Conjecture: Plasma Relaxation at all Wavelengths”. *Phys. Rev. Lett.* **109.23** (2012), 235001.
70. **J. Squire**, H. Qin, and W. M. Tang. “Geometric integration of the Vlasov-Maxwell system with a variational particle-in-cell scheme”. *Phys. Plasmas* **19.8** (2012), 084501.
71. **J. Squire**, H. Qin, and W. M. Tang. “Gauge properties of the guiding center variational symplectic integrator”. *Phys. Plasmas* **19.5** (2012), 052501.