

Fabio Riva

Publication list

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Publications in peer-reviewed scientific journals

1. Fasoli, F. Avino, A. Bovet, I. Furno, K. Gustafson, S. Jolliet, J. Loizu, D. Malinverni, P. Ricci, [F. Riva](#), C. Theiler, M. Spolaore and N. Vianello, "Basic investigations of electrostatic turbulence and its interaction with plasma and suprathermal ions in a simple magnetized toroidal plasma", **Nuclear Fusion** **53**, 063013 (2013).
2. [F. Riva](#), P. Ricci, F.D. Halpern, S. Jolliet, J. Loizu and A. Masetto, "Verification methodology for plasma simulations and application to a scrape-off layer turbulence code", **Physics of Plasmas** **21**, 062301 (2014).
3. S. Jolliet, F.D. Halpern, J. Loizu, A. Masetto, [F. Riva](#) and P. Ricci, "Numerical approach to the parallel gradient operator in tokamak scrape-off layer turbulence simulations and application to the GBS code", **Computational Physics Community** **188**, 21 (2015).
4. P. Ricci, [F. Riva](#), C. Theiler, A. Fasoli, I. Furno, F.D. Halpern and J. Loizu, "Approaching the investigation of plasma turbulence through a rigorous verification and validation procedure: A practical example", **Physics of Plasmas** **22**, 055704 (2015).
5. [F. Riva](#), C. Colin, J. Denis, L. Easy, I. Furno, J. Madsen, F. Militello, V. Naulin, A.H. Nielsen, J.M.B. Olsen, J.T. Omotani, J.J. Rasmussen, P. Ricci, E. Serre, P. Tamain and C. Theiler, "Blob dynamics in the TORPEX experiment: a multi-code validation", **Plasma Physics and Controlled Fusion** **58**, 044005 (2016).
6. F.D. Halpern, P. Ricci, S. Jolliet, J. Loizu, J. Morales, A. Masetto, F. Musil, [F. Riva](#), T.M. Tran and C. Wersal, "The GBS code for tokamak scrape-off layer simulations", **Journal of Computational Physics** **315**, 388 (2016).
7. F. Militello, N.R. Walkden, T. Farley, W.A. Gracias, J. Olsen, [F. Riva](#), L. Easy, N. Fedorczak, I. Lupelli, J. Madsen, A.H. Nielsen, P. Ricci, P. Tamain and J. Young, "Multi-code analysis of Scrape-Off Layer filament dynamics in MAST", **Plasma Physics and Controlled Fusion** **58**, 115002 (2016).
8. F. Nespoli, I. Furno, F.D. Halpern, B. Labit, J. Loizu, P. Ricci and [F. Riva](#), "Non-linear simulations of the TCV Scrape- Off Layer", **Nuclear Materials and Energy** **12**, 1205-1208 (2017).
9. [F. Riva](#), E. Lanti, S. Jolliet and P. Ricci, "Plasma shaping effects on tokamak scrape-off layer turbulence", **Plasma Physics and Controlled Fusion** **59**, 035001 (2017).
10. [F. Riva](#), C. Beadle and P. Ricci, "A methodology for the rigorous verification of Particle-in-Cell simulations", **Physics of Plasmas** **24**, 055703 (2017).
11. F. Nespoli, F. Avino, I. Furno, F.D. Halpern, B. Labit, F. Musil, P. Ricci and [F. Riva](#), "Blob properties in full-turbulence simulations of the TCV scrape-off layer", **Plasma Physics and Controlled Fusion** **59**, 055009 (2017).
12. [F. Riva](#), L. Milanese and P. Ricci, "Uncertainty propagation by using spectral methods: A practical application to a two-dimensional turbulence fluid model", **Physics of Plasmas** **24**, 102302 (2017).
13. [F. Riva](#), N. Vianello, M. Spolaore, P. Ricci, R. Cavazzana, L. Marrelli and S. Spagnolo, "Three-dimensional simulations of plasma turbulence in the RFX-mod scrape-off layer and comparison with experimental measurements", **Physics of Plasmas** **25**, 022305 (2018).
14. P. Paruta, P. Ricci, [F. Riva](#), C. Wersal, C. Beadle, and B. Frei. "Simulation of plasma turbulence in the periphery of diverted tokamak by using the GBS code", **Physics of Plasmas** **25**, 112301 (2018).

15. N.R. Walkden, [F. Riva](#), B.D. Dudson, C. Ham, F. Militello, D. Moulton, T. Nicholas, J.T. Omotani, “3D simulations of turbulent mixing in a simplified slab-divertor geometry”, **Nuclear Materials and Energy** **18**, 111-117 (2019).
16. O. Chellaï, S. Alberti, M. Baquero-Ruiz, I. Furno, T. Goodman, B. Labit, O. Maj, P. Ricci, [F. Riva](#), L. Guidi, “Millimeter-wave beam scattering by edge-plasma density fluctuations in TCV”, **Plasma Physics and Controlled Fusion** **61**, 014001 (2019).
17. D. Hoare, F. Militello, J.T. Omotani, [F. Riva](#), S. Newton, T. Nicholas, D. Ryan, N.R. Walkden, “Dynamics of Scrape-Off Layer Filaments in high β plasmas”, **Plasma Physics and Controlled Fusion** **61**, 105013 (2019).
18. [F. Riva](#), F. Militello, S. Elmore, J.T. Omotani, B.D. Dudson, N. Walkden, “Three-dimensional plasma edge turbulence simulations of the Mega Ampere Spherical Tokamak and comparison with experimental measurements”, **Plasma Physics and Controlled Fusion** **61**, 095013 (2019)
19. [F. Riva](#), C.K. Tsui, J.A. Boedo P. Ricci and the TCV Team, “Shaping effects on scrape-off layer plasma turbulence: a rigorous validation of three-dimensional simulations against TCV”, **Physics of Plasmas** **27**, 012301 (2020).
20. F. Militello, L. Aho-Mantila, R. Ambrosino, T. Body, H. Bufferand, G. Calabro, G. Ciraolo, D. Coster, G. Di Gironimo, P. Fanelli, N. Fedorczak, A. Herrmann, P. Innocente, R. Kembleton, J. Lilburne, T. Lunt, D. Marzullo, S. Merriman, D. Moulton, A.H. Nielsen, J.T. Omotani, G. Ramogida, H. Reimerdes, M. Reinhart, P. Ricci, [F. Riva](#), A. Stegmeir, F. Subba, W. Suttrop, P. Tamain, M. Teschke, A. Thrysoe, W. Treutterer, S. Varoutis, M. Wensing, A. Wilde, M. Wischmeier, L.Y. Xiang, “Preliminary analysis of alternative divertors for DEMO”, **Nuclear Materials and Energy** **26**, 100908 (2021).
21. B.D. Dudson, W.A. Gracias, R. Jorge, A.H. Nielsen, M.B. Olsen, P. Ricci, C. Silva, P. Tamain, G. Ciraolo, N. Fedorczak, D. Galassi, J. Madsen, F. Militello, N. Nace, J.J. Rasmussen, [F. Riva](#), E. Serre, “Edge turbulence in ISTTOK : a multi-code fluid validation”, **Plasma Physics and Controlled Fusion** **63**, 055013 (2021).
22. O. Chellaï, S. Alberti, I. Furno, T. Goodman, O. Maj, G. Merlo, E. Poli, P. Ricci, [F. Riva](#), H. Weber, “Millimeter-wave beam scattering and induced broadening by plasma turbulence in the TCV tokamak”, **Nuclear Fusion** **61**, 066011 (2021).
23. [F. Riva](#), O. Steiner, “Methodology for estimating the magnetic Prandtl number and application to solar surface small-scale dynamo simulations”, **Astronomy & Astrophysics** **660**, A115 (2022).
24. N. Walkden, [F. Riva](#), J. Harrison , F. Militello , T. Farley , J.T. Omotani , B. Lipschultz, “The physics of turbulence localised to the tokamak divertor volume”, **Communications Physics** **5**, 139 (2022).
25. T.E.G. Nicholas, J. Omotani, [F. Riva](#), F. Militello, B. Dudson, “Comparing two- and three-dimensional models of scrape-off layer turbulent transport”, **Plasma Physics and Controlled Fusion** **64**, 095001 (2022).

Conference contributions and invited talks

- Poster at the 19th Joint EU-US Transport Task Force Meeting, Culham, UK (2014)
- Poster at the 16th European Fusion Theory Conference, Lisbon, P (2015)
- Poster at the 21st Joint EU-US Transport Task Force Meeting, Leysin, CH (2016)
- Invited talk at the 58th Annual Meeting of the APS Division of Plasma Physics, San Jose, California (2016)
- Invited talk at the 25th International Conference on Numerical Simulation of Plasmas, Leuven, BE (2017)
- Oral contribution at the 46th European Physical Society Conference on Plasma Physics, Milan, I (2019)
- Invited talk at the 3rd Asia-Pacific Conference on Plasma Physics, Hefei, CN (2019)
- Poster at the 16th European Solar Physics Meeting, online (2021)
- Poster at the 2022 Platform for Advanced Scientific Computing Conference (2022)
- Poster at 21st Cambridge Workshops of Cool Stars, Stellar Systems and the Sun, Toulouse, F (2022)

Invited seminars

- Seminar presented at the University of Wisconsin, Madison, Wisconsin (2017)
- Seminar presented at the University of Maryland, College Park, Maryland (2017)
- Seminar presented at the Massachusetts Institute of Technology, Cambridge, Massachusetts (2017)
- Seminar presented at the Princeton Plasma Physics Laboratory, Princeton, New Jersey (2017)
- Seminar presented at the Imperial College London, London, UK (2018)
- Seminar presented at the Euler Institute (USI), Lugano, CH (online, 2021)
- Seminar presented at the Leibniz-Institut für Sonnenphysik (KIS), Freiburg i.Br., D (2021)

Contributions to books and monographs

Co-author of the chapter “Verification and Validation in plasma physics” in “Plasma Modeling: Methods and Application”, edited by Gianpiero Colonna and Antonio D’Angola, IOP Publishing Ltd of Temple Circus, Temple Way, Bristol (2016). Author of the Ph.D. thesis “Verification and validation procedures with applications to plasma-edge turbulence simulations”, EPFL, (2017).

Workshops

I participated to and had oral contributions in a number of international workshops in Europe and in the US, including three kick-off meeting of the Enabling Research project of Prof. Dr. Paolo Ricci (Lausanne, Oxford, and Marseille), one WP-DTT1/ADC yearly planning meeting (Frascati), one TSVV Edge Code development workshop (Culham), and two BOUT++ workshops (Livermore and Abingdon).

Others

Four contributions that appeared on the CO⁵BOLD Quarterly Companion newsletter (circulated among the CO⁵BOLD users).