

USim Publication List

2022

- Howell, E. C., King, J. R., Kruger, S. E., Callen, J. D., La Haye, R. J., & Wilcox, R. S. Growing neoclassical tearing modes seeded via transient-induced-multimode interactions. *Physics of Plasmas*, 29(2), 022507. (2022)
<https://doi.org/10.1063/5.0076253>

2021

- Jacob King et al, "Integrating tokamak-edge MHD-fluctuation modeling with transport", 28th IAEA Fusion Energy Conference (2021)
<https://conferences.iaea.org/event/214/contributions/17559/>

2020

- Charles Corbella, Sabine Portal, Madhusudhan N. Kundrapu, and Michael Keidar, "Energy considerations regarding pulsed arc production of nanomaterials", *Journal of Applied Physics*, 128, 033303 (2020) <https://doi.org/10.1063/5.0015047>
- J. R. King, R. Masti, B. Srinivasan, and K. Beckwith, "Multidimensional Tests of a Finite-Volume Solver for MHD With a Real-Gas Equation of State", *IEEE Transactions on Plasma Science* 48, 902-913 (2020). <https://doi.org/10.1109/TPS.2020.2981238>

2019

- Carles Corbella, Sabine Portal, Denis B Zolotukhin, Luis Martinez, Li Lin, Madhusudhan N. Kundrapu, and Michael Keidar, "Pulsed anodic arc discharge for the synthesis of carbon nanomaterials" *Plasma Sources Sci. Technol.* 28 045016 (2019)
<https://doi.org/10.1088/1361-6595/ab123c>

2016

- Seth A. Veitzer, Madhusudhan Kundrapu, Peter Stoltz, and Kristian Beckwith, "Alternative modeling methods for plasma-based Rf ion sources", *Rev Sci Instrum.* 87 (2):02B142 (2016). <https://doi.org/10.1063/1.4936090>

2015

- K. Beckwith, S. A. Veitzer, S. McCormick, J. Ruge, L. N. Olson, and J. C. Cahoun, "Fully Implicit Ultrascale Physics Solvers and Application to Ion Source Modeling", *IEEE Transactions on Plasma Science* **43**, 957-964 (2015). <https://doi.org/10.1109/TPS.2014.2388151>
- Madhusudhan Kundrapu, John Loverich, Kristian Beckwith, Peter Stoltz, Alexey Shashurin, and Michael Keidar, "Modeling Radio Communication Blackout and Blackout Mitigation in Hypersonic Vehicles", *Journal of Spacecraft and Rockets* **52**, 853-862 (2015). <https://doi.org/10.2514/1.A33122>

- Seth A. Veitzer, Kristian R. C. Beckwith, Madhusudhan Kundrapu, and Peter H. Stoltz, "Numerical modeling of the SNS H⁻ ion source", AIP Conference Proceedings **1655**, 030004 (2015). <https://doi.org/10.1063/1.4916431>

2014

- J. R. King and S. E. Kruger, "A parametric study of the drift-tearing mode using an extended-magnetohydrodynamic model", Physics of Plasmas **21**, 102113 (2014). <https://doi.org/10.1063/1.4899036>
- M. Kundrapu, J. Loverich, K. Beckwith, P. Stoltz, A. Shashurin, and M. Keidar, "Electromagnetic wave propagation in the plasma layer of a reentry vehicle", Proceedings of the IEEE 41st International Conference on Plasma Sciences (ICOPS) held with IEEE International Conference on High-Power Particle Beams (BEAMS), 1-4 (2014). <https://doi.org/10.1109/PLASMA.2014.7012766>
- A. Shashurin, T. Zhuang, M. Kundrapu, J. Loverich, I. I. Beilis and M. Keidar, "Modeling of a Plasma Layer in Vicinity of a Hypersonic Vehicle Using Cathodic Arc," in *IEEE Transactions on Plasma Science*, vol. 42, no. 10, pp. 2660-2661, Oct. 2014, doi: 10.1109/TPS.2014.2320856.
- A. Shashurin, T. Zhuang, G. Teel, M. Keidar, M. Kundrapu, J. Loverich, I. I. Beilis, and Y. Raitses, "Laboratory Modeling of the Plasma Layer at Hypersonic Flight", Journal of Spacecraft and Rockets **51**, 838-846 (2014). <https://doi.org/10.2514/1.A32771>

2013

- Thomas G. Jenkins, Travis M. Austin, David N. Smithe, John Loverich, and Ammar H. Hakim, "Time-domain simulation of nonlinear radiofrequency phenomena", Physics of Plasmas **20**, 012116 (2013). <https://doi.org/10.1063/1.4776704>
- Madhusudhan Kundrapu, John Loverich, Kris Beckwith, Peter Stoltz, Michael Keidar, and Tai Sen Zhuang, "Modeling and Simulation of Weakly Ionized Plasmas Using Nautilus", in Proceedings of the 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, AIAA 2013-1187 (2013). <https://doi.org/10.2514/6.2013-1187>
- John Loverich, Sean C. D Zhou, Kris Beckwith, Madhusudhan Kundrapu, Mike Loh, Sudhakar Mahalingam, Peter Stoltz and Ammar Hakim, "Nautilus: A Tool For Modeling Fluid Plasmas", in Proceedings of the 51st AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition, AIAA 2013-1185 (2013). <https://doi.org/10.2514/6.2013-1185>
- Elizabeth C. Merritt, Auna L. Moser, Scott C. Hsu, John Loverich, and Mark Gilmore, "Experimental Characterization of the Stagnation Layer between Two Obliquely Merging Supersonic Plasma Jets", Physical Review Letters **111**, 085003 (2013). <https://doi.org/10.1103/PhysRevLett.111.085003>
- M. G. Schlutt, C. C. Hegna, C. R. Sovinec, E. D. Held, and S. E. Kruger, "Self-consistent simulations of nonlinear magnetohydrodynamics and profile evolution in stellarator

configurations”, *Physics of Plasmas* **20**, 056104 (2013). <https://doi.org/10.1063/1.4802834>

2012

- Thomas G. Jenkins and Scott E. Kruger, “Fluid equations in the presence of electron cyclotron current drive”, *Phys. Plasmas* **19**, 122508 (2012). <https://doi.org/10.1063/1.4773211>
- Elizabeth C. Merritt, Alan G. Lynn, Mark A. Gilmore, Carsten Thoma, John Loverich, and Scott C. Hsu, “Multi-chord fiber-coupled interferometry of supersonic plasma jets”, *Review of Scientific Instruments* **83**, 10D523 (2012). (invited) <https://doi.org/10.1063/1.4734496>

2011

- John Loverich, Ammar Hakim, Uri Shumlak, “A Discontinuous Galerkin Method for Ideal Two-Fluid Plasma Equations”, *Communications in Computational Physics* **9**, 240-268 (2011). <https://doi.org/10.4208/cicp.250509.210610a>

2010

- J. Loverich and A. Hakim, “Two-Dimensional Modeling of Ideal Merging Plasma Jets”, *Journal of Fusion Energy* **29**, 532–539 (2010). <https://doi.org/10.1007/s10894-010-9321-z>

2006

- A. Hakim, J. Loverich, and U. Shumlak, “A high resolution wave propagation scheme for ideal Two-Fluid plasma equations”, *Journal of Computational Physics* **219**, 418-442 (2006). <https://doi.org/10.1016/j.jcp.2006.03.036>