

LIST OF PUBLICATIONS

PUBLICATIONS IN PEER REVIEW JOURNALS

- [1] A. Aschikhin, T. J. Mehrling, A. Martinez de la Ossa, and J. Osterhoff. *Analytical model for the uncorrelated emittance evolution of externally injected beams in plasma-based accelerators*. **Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment**, pages –, 2018. URL <https://www.sciencedirect.com/science/article/pii/S0168900218302195>.
- [2] V. Libov, A. Aschikhin, J. Dale, R. D'Arcy, K. Ludwig, A. Martinez de la Ossa, T. Mehrling, J.-H. Roeckemann, L. Schaper, B. Schmidt, S. Schröder, S. Wesch, J. Zemella, and J. Osterhoff. *FLASHForward X-2: Towards beam quality preservation in a plasma booster*. **Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment**, pages –, 2018. URL <https://www.sciencedirect.com/science/article/pii/S0168900218302171>.
- [3] T. J. Mehrling, C. Benedetti, C. B. Schroeder, A. M. de la Ossa, J. Osterhoff, E. Esarey, and W. P. Leemans. *Accurate modeling of the hose instability in plasma wakefield accelerators*. **Physics of Plasmas**, 25(5):056703, 2018. URL <https://doi.org/10.1063/1.5017960>.
- [4] A. Martinez de la Ossa, Z. Hu, M. J. V. Streeter, T. J. Mehrling, O. Kononenko, B. Sheeran, and J. Osterhoff. *Optimizing density down-ramp injection for beam-driven plasma wakefield accelerators*. **Phys. Rev. Accel. Beams**, 20:091301, Sep 2017. URL <https://link.aps.org/doi/10.1103/PhysRevAccelBeams.20.091301>.
- [5] R. Brinkmann, N. Delbos, I. Dornmair, M. Kirchen, R. Assmann, C. Behrens, K. Floettmann, J. Grebenyuk, M. Gross, S. Jalas, T. Mehrling, A. Martinez de la Ossa, J. Osterhoff, B. Schmidt, V. Wacker, and A. R. Maier. *Chirp Mitigation of Plasma-Accelerated Beams by a Modulated Plasma Density*. **Phys. Rev. Lett.**, 118:214801, May 2017. URL <https://link.aps.org/doi/10.1103/PhysRevLett.118.214801>.
- [6] T. J. Mehrling, R. A. Fonseca, A. Martinez de la Ossa, and J. Vieira. *Mitigation of the Hose Instability in Plasma-Wakefield Accelerators*. **Phys. Rev. Lett.**, 118:174801, Apr 2017. URL <https://link.aps.org/doi/10.1103/PhysRevLett.118.174801>.
- [7] R. E. Robson, T. J. Mehrling, and J. Osterhoff. *Great moments in kinetic theory: 150 years of Maxwells (other) equations*. **European Journal of Physics**, 38(6):065103, 2017. URL <http://stacks.iop.org/0143-0807/38/i=6/a=065103>.
- [8] O. Lishilin, M. Gross, R. Brinkmann, J. Engel, F. Grüner, G. Koss, M. Krasilnikov, A. Martinez de la Ossa, T. Mehrling, J. Osterhoff, G. Pathak, S. Philipp, Y. Renier, D. Richter, C. Schroeder, R. Schütze, and F. Stephan. *First results of the plasma wakefield acceleration experiment at PITZ*. **Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment**, 829:37 – 42, September 2016. URL <http://www.sciencedirect.com/science/article/pii/S0168900216000085>. Citing Articles without self-citations: 0 (WoS - Nov 2017).
- [9] T. Mehrling, R. Robson, J.-H. Erbe, and J. Osterhoff. *Efficient numerical modelling of the emittance evolution of beams with finite energy spread in plasma wakefield accelerators*. **Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment**, 829:367 – 371, September 2016. URL <http://www.sciencedirect.com/science/article/pii/S0168900216001418>. Citing Articles without self-citations: 0 (WoS - Nov 2017).

- [10] A. Aschikhin, C. Behrens, S. Bohlen, J. Dale, N. Delbos, L. di Lucchio, E. Elsen, J.-H. Erbe, M. Felber, B. Foster, L. Goldberg, J. Grebenyuk, J.-N. Gruse, B. Hidding, Z. Hu, S. Karstensen, A. Knetsch, O. Kononenko, V. Libov, K. Ludwig, A. Maier, A. Martinez de la Ossa, T. Mehrling, C. Palmer, F. Pannek, L. Schaper, H. Schlarb, B. Schmidt, S. Schreiber, J.-P. Schwinkendorf, H. Steel, M. Streeter, G. Tauscher, V. Wacker, S. Weichert, S. Wunderlich, J. Zemella, and J. Osterhoff. *The FLASHForward facility at DESY. Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 806:175 – 183, January 2016. URL <http://www.sciencedirect.com/science/article/pii/S0168900215012103>. Citing Articles without self-citations: 5 (WoS - Nov 2017).
- [11] A. Martinez de la Ossa, T. J. Mehrling, L. Schaper, M. J. V. Streeter, and J. Osterhoff. *Wakefield-induced ionization injection in beam-driven plasma accelerators. Physics of Plasmas*, 22(9):–, September 2015. URL <http://scitation.aip.org/content/aip/journal/pop/22/9/10.1063/1.4929921>. Citing Articles without self-citations: 4 (WoS - Nov 2017).
- [12] R. Robson, T. Mehrling, and J. Osterhoff. *Phase-space moment-equation model of highly relativistic electron-beams in plasma-wakefield accelerators. Annals of Physics*, 356(0):306 – 319, May 2015. URL <http://www.sciencedirect.com/science/article/pii/S0003491615000998>. Citing Articles without self-citations: 2 (WoS - Nov 2017).
- [13] T. Mehrling, C. Benedetti, C. B. Schroeder, and J. Osterhoff. *HiPACE: a quasi-static particle-in-cell code. Plasma Physics and Controlled Fusion*, 56(8):084012, July 2014. URL <http://stacks.iop.org/0741-3335/56/i=8/a=084012>. Citing Articles without self-citations: 10 (WoS - Nov 2017).
- [14] J. Grebenyuk, A. Martinez de la Ossa, T. Mehrling, and J. Osterhoff. *Beam-driven plasma-based acceleration of electrons with density down-ramp injection at FLASHForward. Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 740(0):246 – 249, March 2014. URL <http://www.sciencedirect.com/science/article/pii/S0168900213014356>. Citing Articles without self-citations: 6 (WoS - Nov 2017).
- [15] A. Martinez de la Ossa, C. Behrens, J. Grebenyuk, T. Mehrling, L. Schaper, and J. Osterhoff. *High-quality electron beams from field-induced ionization injection in the strong blow-out regime of beam-driven plasma accelerators. Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 740(0):231 – 235, March 2014. URL <http://www.sciencedirect.com/science/article/pii/S016890021301334X>. Citing Articles without self-citations: 1 (WoS - Nov 2017).
- [16] A. Martinez de la Ossa, J. Grebenyuk, T. Mehrling, L. Schaper, and J. Osterhoff. *High-Quality Electron Beams from Beam-Driven Plasma Accelerators by Wakefield-Induced Ionization Injection. Phys. Rev. Lett.*, 111:245003, December 2013. URL <http://link.aps.org/doi/10.1103/PhysRevLett.111.245003>. Citing Articles without self-citations: 15 (WoS - Nov 2017).
- [17] T. Mehrling, J. Grebenyuk, F. S. Tsung, K. Floettmann, and J. Osterhoff. *Transverse emittance growth in staged laser-wakefield acceleration. Phys. Rev. ST Accel. Beams*, 15:111303, November 2012. URL <http://link.aps.org/doi/10.1103/PhysRevSTAB.15.111303>. Citing Articles without self-citations: 32 (WoS - Nov 2017).

PROCEEDINGS

- [18] *FLASHForward - A Future-Oriented Wakefield-Accelerator Research and Development Facility at FLASH*, number 8 in International Particle Accelerator Conference, Geneva, Switzerland, May 2017. JACoW. URL <http://jacow.org/ipac2017/papers/tupik006.pdf>. <https://doi.org/10.18429/JACoW-IPAC2017-TUPIK006>.
- [19] *Experimental Investigation of High Transformer Ratio Plasma Wakefield Acceleration at PITZ*, 2017. URL <http://inspirehep.net/record/1626950/files/tupik018.pdf>.
- [20] *Horizon 2020 EuPRAXIA design study*, volume 874, 2017. URL <http://stacks.iop.org/1742-6596/874/i=1/a=012029>.
- [21] *Electron-injection techniques in plasma-wakefield accelerators for driving free-electron lasers*, volume 15 of *inSiDE*, September 2016. URL <http://inside.hlrs.de/download.html>. GAUSS Centre for Supercomputing (HLRS, LRZ, JSC).
- [22] *Simulations Study for Self-Modulation Experiment at PITZ*, June 2015. URL <http://jacow.org/IPAC2015/papers/wepwa005.pdf>. Proceedings of the 6th International Particle Accelerator Conference, Richmond, VA, USA.
- [23] *Radiation Generation in Plasma-Based Accelerators with Controlled Electron Injection*, volume 47 of *NIC Series*. Verlag des Forschungszentrums Jülich, February 2014.
- [24] *Simulations of laser-wakefield acceleration with external electron-bunch injection for REGAE experiments at DESY*, volume 1507, December 2012. URL <http://scitation.aip.org/content/aip/proceeding/aipcp/10.1063/1.4773781>. Proceedings of the AAC 2012, Austin, USA.
- [25] *Laser-Wakefield Acceleration with External Bunch Injection at REGAE*, September 2012. URL <http://accelconf.web.cern.ch/AccelConf/rupac2012/papers/moppa005.pdf>. Proceedings of RUPAC 2012, Saint-Petersburg, Russia.

THESES

- [26] T. J. Mehrling. *Theoretical and numerical studies on the transport of transverse beam quality in plasma-based accelerators*. **Dissertation (PhD thesis)**, Universität Hamburg, Institut für Experimentalphysik, Luruper Chaussee 149, 22761 Hamburg, Germany, August 2014. URL <http://ediss.sub.uni-hamburg.de/volltexte/2014/7029/>.
- [27] T. Mehrling. *Studying laser wakefield acceleration of relativistic electron bunches in inhomogeneous plasma with PIC simulations*. **Diplomarbeit (Master's thesis)**, Technische Universität München Arcisstraße 11, 80333 München, March 2011.