LIST OF PUBLICATIONS

PUBLICATIONS IN PEER REVIEW JOURNALS

[1] O. Lishilin, M. Gross, R. Brinkmann, J. Engel, F. Grüner, G. Koss, M. Krasilnikov, A. M. 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 - Aug 2016).

[2] **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 - Aug 2016).

[3] **T. J. Mehrling**, R. A. Fonseca, A. M. de la Ossa, and J. Vieira. *Mitigation of the hose instability in plasma-wakefield accelerators*. **Submitted to Physical Review Letters**, August 2016.

[4] R. Brinkmann, N. Delbos, I. Dornmair, R. Assmann, C. Behrens, K. Floettmann, J. Grebenyuk, M. Gross, S. Jalas, M. Kirchen, **T. Mehrling**, A. M. de la Ossa, J. Osterhoff, B. Schmidt, V. Wacker, and A. R. Maier. *Chirp mitigation of plasma-accelerated beams using a modulated plasma density*. **Submitted to Physical Review Letters**, March 2016. URL https://arxiv.org/abs/1603.08489.

[5] 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. M. 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: 0 (WoS - Aug 2016).

[6] 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: 1 (WoS - Aug 2016).

[7] 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 - Aug 2016).

[8] **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: 6 (WoS - Aug 2016).

[9] J. Grebenyuk, A. M. 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: 3 (WoS - Aug 2016).

[10] 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 - Aug 2016).

[11] 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: 8 (WoS - Aug 2016).

[12] **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: 22 (WoS - Aug 2016).

PROCEEDINGS

[13] *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).

[14] *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.

[15] *Radiation Generation in Plasma-Based Accelerators with Controlled Electron Injection*, volume 47 of *NIC Series*. Verlag des Forschungszentrums Jülich, February 2014.

[16] *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.

[17] *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

[18] **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/.

[19] **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.