

LIST OF PUBLICATIONS

REVIEWED JOURNAL PAPERS

- [1] S. Diederichs, T. J. Mehrling, C. Benedetti, C. B. Schroeder, A. Knetsch, E. Esarey, and J. Osterhoff. *Positron transport and acceleration in beam-driven plasma wakefield accelerators using plasma columns*. **Phys. Rev. Accel. Beams**, 22:081301, Aug 2019. URL <https://link.aps.org/doi/10.1103/PhysRevAccelBeams.22.081301>.
- [2] R. D’Arcy, S. Wesch, A. Aschikhin, S. Bohlen, C. Behrens, M. J. Garland, L. Goldberg, P. Gonzalez, A. Knetsch, V. Libov, A. M. de la Ossa, M. Meisel, T. J. Mehrling, P. Niknejadi, K. Poder, J.-H. Röckemann, L. Schaper, B. Schmidt, S. Schröder, C. Palmer, J.-P. Schwinkendorf, B. Sheeran, M. J. V. Streeter, G. Tauscher, V. Wacker, and J. Osterhoff. *Tunable Plasma-Based Energy Dechirper*. **Phys. Rev. Lett.**, 122:034801, Jan 2019. URL <https://link.aps.org/doi/10.1103/PhysRevLett.122.034801>.
- [3] R. D’Arcy, A. Aschikhin, S. Bohlen, G. Boyle, T. Brummer, J. Chappell, S. Diederichs, B. Foster, M. J. Garland, L. Goldberg, P. Gonzalez, S. Karstensen, A. Knetsch, P. Kuang, V. Libov, K. Ludwig, A. Martinez de la Ossa, F. Marutzky, M. Meisel, T. J. Mehrling, P. Niknejadi, K. Poder, P. Pourmoussavi, M. Quast, J. H. Röckemann, L. Schaper, B. Schmidt, S. Schröder, J. P. Schwinkendorf, B. Sheeran, G. Tauscher, S. Wesch, M. Wing, P. Winkler, M. Zeng, and J. Osterhoff. *FLASHForward: plasma wakefield accelerator science for high-average-power applications*. **Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences**, 377(2151):20180392, 2019. URL <https://royalsocietypublishing.org/doi/abs/10.1098/rsta.2018.0392>.
- [4] C.-S. Jao, S. Vafin, Y. Chen, M. Gross, M. Krasilnikov, G. Loisch, T. Mehrling, J. Niemiec, A. Oppelt, A. M. de la Ossa, J. Osterhoff, M. Pohl, and F. Stephan. *Preliminary study for the laboratory experiment of cosmic-rays driven magnetic field amplification*. **High Energy Density Physics**, 32:31 – 43, 2019. URL <http://www.sciencedirect.com/science/article/pii/S1574181818300521>.
- [5] T. J. Mehrling, C. Benedetti, C. B. Schroeder, E. Esarey, and W. P. Leemans. *Suppression of Beam Hosing in Plasma Accelerators with Ion Motion*. **Phys. Rev. Lett.**, 121:264802, Dec 2018. URL <https://link.aps.org/doi/10.1103/PhysRevLett.121.264802>.
- [6] G. Loisch, G. Asova, P. Boonpornprasert, R. Brinkmann, Y. Chen, J. Engel, J. Good, M. Gross, F. Grüner, H. Huck, D. Kalantaryan, M. Krasilnikov, O. Lishilin, A. M. de la Ossa, T. J. Mehrling, D. Melkumyan, A. Oppelt, J. Osterhoff, H. Qian, Y. Renier, F. Stephan, C. Tenholt, V. Wohlfarth, and Q. Zhao. *Observation of High Transformer Ratio Plasma Wakefield Acceleration*. **Phys. Rev. Lett.**, 121:064801, Aug 2018. URL <https://link.aps.org/doi/10.1103/PhysRevLett.121.064801>.
- [7] A. Martinez de la Ossa, T. J. Mehrling, and J. Osterhoff. *Intrinsic Stabilization of the Drive Beam in Plasma-Wakefield Accelerators*. **Phys. Rev. Lett.**, 121:064803, Aug 2018. URL <https://link.aps.org/doi/10.1103/PhysRevLett.121.064803>.
- [8] M. Gross, J. Engel, J. Good, H. Huck, I. Isaev, G. Koss, M. Krasilnikov, O. Lishilin, G. Loisch, Y. Renier, T. Rublack, F. Stephan, R. Brinkmann, A. Martinez de la Ossa, J. Osterhoff, D. Malyutin, D. Richter, T. Mehrling, M. Khojayan, C. B. Schroeder, and F. Grüner. *Observation of the Self-Modulation Instability via Time-Resolved Measurements*. **Phys. Rev. Lett.**, 120:144802, Apr 2018. URL <https://link.aps.org/doi/10.1103/PhysRevLett.120.144802>.

- [9] 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>.
- [10] 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>.
- [11] R. Brinkmann, N. Delbos, I. Dornmair, M. Kirchen, R. Assmann, C. Behrens, K. Floettmann, J. Grebenyuk, M. Gross, S. Jalaš, 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>.
- [12] 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>.
- [13] 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>.
- [14] 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>.
- [15] 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>.
- [16] 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>.
- [17] 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>.
- [18] 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>.

REVIEWED CONFERENCE PROCEEDINGS

- [19] O. Lishilin and others. *Overview and Prospects of Plasma Wakefield Acceleration Experiments at PITZ*. In *Proc. 10th International Particle Accelerator Conference (IPAC'19)*, Melbourne, Australia, 19-24 May 2019, number 10 in International Particle Accelerator Conference, pages 3612–3615, Geneva, Switzerland, Jun. 2019. JACoW Publishing. URL <http://jacow.org/ipac2019/papers/thpgw016.pdf>. <https://doi.org/10.18429/JACoW-IPAC2019-THPGW016>.

- [20] O. Lishilin and others. *Self-Modulation Instability of Electron Beams in Plasma Channels of Variable Length*. In *Proc. 10th International Particle Accelerator Conference (IPAC'19)*, Melbourne, Australia, 19-24 May 2019, number 10 in International Particle Accelerator Conference, pages 3616–3618, Geneva, Switzerland, Jun. 2019. JACoW Publishing. URL <http://jacow.org/ipac2019/papers/thpgw017.pdf>. <https://doi.org/10.18429/JACoW-IPAC2019-THPGW017>.
- [21] P. Nghiem and others. *EuPRAXIA, a Step Toward a Plasma-Wakefield Based Accelerator With High Beam Quality*. In *Proc. 10th International Particle Accelerator Conference (IPAC'19)*, Melbourne, Australia, 19-24 May 2019, number 10 in International Particle Accelerator Conference, pages 2291–2295, Geneva, Switzerland, Jun. 2019. JACoW Publishing. URL <http://jacow.org/ipac2019/papers/wezzpls2.pdf>. <https://doi.org/10.18429/JACoW-IPAC2019-WEZZPLS2>.
- [22] P. Niknejadi and others. *FLASHforward Findings for the EuPRAXIA Design Study and the Next-Generation of Compact Accelerator Facilities*. In *Proc. 10th International Particle Accelerator Conference (IPAC'19)*, Melbourne, Australia, 19-24 May 2019, number 10 in International Particle Accelerator Conference, pages 3619–3623, Geneva, Switzerland, Jun. 2019. JACoW Publishing. URL <http://jacow.org/ipac2019/papers/thpgw019.pdf>. <https://doi.org/10.18429/JACoW-IPAC2019-THPGW019>.
- [23] C. Benedetti, C. Schroeder, T. Mehrling, B. Djordjevic, S. Bulanov, C. Geddes, E. Esarey, and W. Leemans. *INF RNO Modeling of 10 GeV-Class Electron Beams from a Laser-Plasma Accelerator Driven by the BELLA Laser*. In *2018 IEEE Advanced Accelerator Concepts Workshop (AAC)*, pages 1–5, Aug 2018.
- [24] T. J. Mehrling, C. Benedetti, C. B. Schroeder, and E. Esarey. *A Subgrid Algorithm for the Efficient Modeling of Plasma-Based Accelerators with Ion Motion Using Quasi-Static Particle-in-Cell Codes*. In *2018 IEEE Advanced Accelerator Concepts Workshop (AAC)*, pages 1–5, Aug 2018.
- [25] A. Aschikhin, T. J. Mehrling, A. MartinezdelaOssa, 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**, 909:414 – 418, 2018. URL <http://www.sciencedirect.com/science/article/pii/S0168900218302195>. 3rd European Advanced Accelerator Concepts workshop (EAAC2017).
- [26] M. Gross, O. Lishilin, G. Loisch, P. Boonpornprasert, Y. Chen, J. Engel, J. Good, H. Huck, I. Isaev, M. Krasilnikov, X. Li, R. Niemczyk, A. Oppelt, H. Qian, Y. Renier, F. Stephan, Q. Zhao, R. Brinkmann, A. M. de la Ossa, J. Osterhoff, F. J. Grüner, T. Mehrling, C. B. Schroeder, and I. Will. *Characterization of self-modulated electron bunches in an argon plasma*. **Journal of Physics: Conference Series**, 1067(4):042012, 2018. URL <http://stacks.iop.org/1742-6596/1067/i=4/a=042012>.
- [27] V. Libov, A. Aschikhin, J. Dale, R. D'Arcy, K. Ludwig, A. M. 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**, 909:80 – 83, 2018. URL <http://www.sciencedirect.com/science/article/pii/S0168900218302171>. 3rd European Advanced Accelerator Concepts workshop (EAAC2017).
- [28] P. Niknejadi, R. D'Arcy, M. C. Kaluza, A. Knetsch, V. Libov, A. M. de la Ossa, T. J. Mehrling, J. Osterhoff, C. A. J. Palmer, K. Poder, A. Svert, L. Schaper, M. B. Schwab, and C. Wirth. *Status of the Transverse Diagnostics at FLASHForward*. **Journal of Physics: Conference Series**, 1067(4):042010, 2018. URL <http://stacks.iop.org/1742-6596/1067/i=4/a=042010>.

- [29] P. A. Walker, P. D. Alesini, A. S. Alexandrova, M. P. Anania, N. E. Andreev, I. Andriyash, A. Aschikhin, R. W. Assmann, T. Audet, A. Bacci, I. F. Barna, A. Beaton, A. Beck, A. Beluze, A. Bernhard, S. Bielawski, F. G. Bisesto, J. Boedewadt, F. Brandi, O. Bringer, R. Brinkmann, E. Bründermann, M. Büscher, M. Bussmann, G. C. Bussolino, A. Chance, J. C. Chanteloup, M. Chen, E. Chiadroni, A. Cianchi, J. Clarke, J. Cole, M. E. Couprie, M. Croia, B. Cros, J. Dale, G. Dattoli, N. Delerue, O. Delferriere, P. Delinikolas, J. Dias, U. Dorda, K. Ertel, A. F. Pousa, M. Ferrario, F. Filippi, J. Fils, R. Fiorito, R. A. Fonseca, M. Galimberti, A. Gallo, D. Garzella, P. Gastinel, D. Giove, A. Giribono, L. A. Gizzi, F. J. Grüner, A. F. Habib, L. C. Haefner, T. Heinemann, B. Hidding, B. J. Holzer, S. M. Hooker, T. Hosokai, A. Irman, D. A. Jaroszynski, S. Jaster-Merz, C. Joshi, M. C. Kaluza, M. Kando, O. S. Karger, S. Karsch, E. Khazanov, D. Khikhlikha, A. Knetsch, D. Kocon, P. Koester, O. Kononenko, G. Korn, I. Kostyukov, L. Labate, C. Lechner, W. P. Leemans, A. Lehrach, F. Y. Li, X. Li, V. Libov, A. Lifschitz, V. Litvinenko, W. Lu, A. R. Maier, V. Malka, G. G. Manahan, S. P. D. Mangles, B. Marchetti, A. Marocchino, A. M. de la Ossa, J. L. Martins, F. Massimo, F. Mathieu, G. Maynard, T. J. Mehrling, A. Y. Molodozhentsev, A. Mosnier, A. Mostacci, A. S. Mueller, Z. Najmudin, P. A. P. Nghiem, F. Nguyen, P. Niknejadi, J. Osterhoff, D. Papadopoulos, B. Patrizi, R. Pattathil, V. Petrillo, M. A. Pocsai, K. Poder, R. Pompili, L. Pribyl, D. Pugacheva, S. Romeo, A. R. Rossi, E. Roussel, A. A. Sahai, P. Scherkl, U. Schramm, C. B. Schroeder, J. Schwindling, J. Scifo, L. Serafini, Z. M. Sheng, L. O. Silva, T. Silva, C. Simon, U. Sinha, A. Specka, M. J. V. Streeter, E. N. Svystun, D. Symes, C. Sz waj, G. Tauscher, A. G. R. Thomas, N. Thompson, G. Toci, P. Tomassini, C. Vaccarezza, M. Vannini, J. M. Vieira, F. Villa, C.-G. Wahlström, R. Walczak, M. K. Weikum, C. P. Welsch, C. Wiemann, J. Wolfenden, G. Xia, M. Yabashi, L. Yu, J. Zhu, and A. Zigler. *Horizon 2020 EuPRAXIA design study*. **Journal of Physics: Conference Series**, 874(1):012029, 2017. URL <http://stacks.iop.org/1742-6596/874/i=1/a=012029>.
- [30] 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>.
- [31] 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>.
- [32] 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>.
- [33] 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>.

- [34] 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>.
- [35] J. Grebenyuk, T. Mehrling, F. S. Tsung, K. Floettman, and J. Osterhoff. *Simulations of laser-wakefield acceleration with external electron-bunch injection for REGAE experiments at DESY*. **AIP Conference Proceedings**, 1507:688–692, December 2012. URL <http://scitation.aip.org/content/aip/proceeding/aipcp/10.1063/1.4773781>. Proceedings of the AAC 2012, Austin, USA.

CONFERENCE PROCEEDINGS

- [36] C. Benedetti, C. B. Schroeder, T. J. Mehrling, E. Esarey, and W. P. Leemans. *Emittance preservation in plasma-based accelerators with ion motion*. In *9th International Particle Accelerator Conference (IPAC'18)*, 2018.
- [37] T. Mehrling, C. Benedetti, C. Schroeder, E. Esarey, and W. Leemans. *Accurate modeling of the hose instability in plasma based accelerators*. In *9th International Particle Accelerator Conference (IPAC'18)*, 2018.
- [38] R. D'Arcy and others. *FLASHForward - A Future-Oriented Wakefield-Accelerator Research and Development Facility at FLASH*. **Proc. of International Particle Accelerator Conference (IPAC'17), Copenhagen, Denmark, 14-19 May, 2017**, (8):1692–1695, May 2017. URL <http://jacow.org/ipac2017/papers/tupik006.pdf>. <https://doi.org/10.18429/JACoW-IPAC2017-TUPIK006>.
- [39] G. Loisch, G. Asova, P. Boonpornprasert, R. Brinkmann, J. Good, M. Groß, G. Florian, H. Huck, M. Krasilnikov, O. Lishilin, A. Martinez de la Ossa, T. Mehrling, A. Oppelt, J. Osterhoff, Y. Renier, T. Rublack, and F. Stephan. *Experimental Investigation of High Transformer Ratio Plasma Wakefield Acceleration at PITZ*. In *Proceedings, 8th International Particle Accelerator Conference (IPAC 2017): Copenhagen, Denmark, May 14-19, 2017*, page TUPIK018, 2017. URL <http://inspirehep.net/record/1626950/files/tupik018.pdf>.
- [40] G. Pathak, C. Benedetti, M. Groß, F. Grüner, A. Martinez de la Ossa, T. Mehrling, J. Osterhoff, C. Schroeder, and F. Stephan. *Simulations Study for Self-Modulation Experiment at PITZ*. In *Proceedings, 6th International Particle Accelerator Conference (IPAC 2015): Richmond, Virginia, USA, May 3-8, 2015*, page WEPWA005, 2015. URL <http://accelconf.web.cern.ch/AccelConf/IPAC2015/papers/wepwa005.pdf>.
- [41] J. Grebenyuk, T. Mehrling, K. Floettman, and J. Osterhoff. *Laser-Wakefield Acceleration with External Bunch Injection at REGAE*. In *Proceedings of RUPAC 2012, Saint-Petersburg, Russia*, September 2012. URL <http://accelconf.web.cern.ch/AccelConf/rupac2012/papers/moppa005.pdf>.

BOOK CHAPTERS

- [42] A. Martinez de la Ossa, T. Mehrling, and J. Osterhoff. *InSiDE*, volume 14, chapter Electron-injection techniques in plasma-wakefield accelerators for driving free-electron lasers, pages

- 65–68. GAUSS Center for Supercomputing (HLRS, LRZ, JSC), September 2016. URL <http://inside.hlrs.de/download.html>.
- [43] T. Mehrling and A. Martinez de la Ossa. *DESY Highlights and Annual Report: Accelerators 2016*, chapter Taming plasma waves: Start-to-end simulations reveal how to suppress hose instability in plasma wakefield accelerators, pages 60–61. Deutsches Elektronen-Synchrotron DESY: A Research Centre of the Helmholtz Association, 2016. URL http://www.desy.de/sites2009/site_www-desy/content/e410/e84441/e243152/Accelerators_2016_ger.pdf.
- [44] J. Grebenyuk, J. Vieira, T. J. Mehrling, J. L. Martins, A. Martinez de la Ossa, R. A. Fonseca, L. O. Silva, and J. Osterhoff. *NIC Symposium 2014 - Proceedings: 12–13 February 2014 — Jülich, Germany*, chapter Radiation Generation in Plasma-Based Accelerators with Controlled Electron Injection, pages 427–434. Publication Series of the John von Neumann Institute for Computing (NIC). NIC, 2014. URL <http://juser.fz-juelich.de/record/151286/files/FZJ-2014-01274.pdf?version=1>.
- [45] T. J. Mehrling. *DESY Highlights and Annual Report: Particle Physics 2012*, chapter Tossed from wave to wave: Assessing staged plasma acceleration, pages 78–79. Deutsches Elektronen-Synchrotron: A Research Centre of the Helmholtz Association, 2012. URL http://www.desy.de/sites2009/site_www-desy/content/e410/e84441/e139597/Particle_Physics_2012_eng.pdf.

THESES

- [46] 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/>.
- [47] 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.