

Publication list

Miriam Brosi

March 2, 2024

PhD thesis

- [1] M. Brosi. “In-Depth Analysis of the Micro-Bunching Characteristics in Single and Multi-Bunch Operation at KARA”. PhD thesis. Karlsruhe Institut für Technologie (KIT), 2020. 198 pp. DOI: 10.5445/IR/1000120018.

In preparation

- [2] M. Brosi, F. Cullinan, Å. Andersson, J. Breunlin, and P. F. Tavares. “Asymmetric Influence of the Amplitude-Dependent Tune Shift on the Transverse Mode-Coupling Instability”. In: *arxiv.org* (2024). in preparation for publication at *Phys. Rev. Accel. Beams*. DOI: 10.48550/ARXIV.2401.15065.
- [3] F. Cullinan, Å. Andersson, J. Breunlin, M. Brosi, and P. F. Tavares. “Experimental Observation of a Mode-1 Instability Driven by Landau Cavities in a Storage Ring”. In: *Phys. Rev. Accel. Beams* (2024). submitted.

Peer-reviewed publications - main author

- [4] M. Brosi, E. Blomley, T. Boltz, E. Bründermann, M. Caselle, J. Gethmann, B. Kehrer, A. I. Papash, L. Rota, P. Schönfeldt, P. Schreiber, M. Schuh, M. Schwarz, J. L. Steinmann, M. Weber, and A.-S. Müller. “Systematic studies of the microbunching and weak instability at short bunch lengths”. In: *CERN Yellow Rep. Conf. Proc.* 9 (2020), p. 335. DOI: 10.23732/CYRCP-2020-009.335.
- [5] M. Brosi, J. L. Steinmann, E. Blomley, T. Boltz, E. Bründermann, J. Gethmann, B. Kehrer, Y.-L. Mathis, A. Papash, M. Schedler, P. Schönfeldt, P. Schreiber, M. Schuh, M. Schwarz, A.-S. Müller, M. Caselle, L. Rota, M. Weber, and P. Kuske. “Systematic studies of the microbunching instability at very low bunch charges”. In: *Phys. Rev. Accel. Beams* 22 (2 2019), p. 020701. DOI: 10.1103/PhysRevAccelBeams.22.020701.
- [6] M. Brosi, J. Gethmann, A. Bernhard, B. Kehrer, A. Papash, P. Schönfeldt, P. Schreiber, J. L. Steinmann, and A.-S. Müller. “Studies of the Micro-Bunching Instability in the Presence of a Damping Wiggler”. In: *Journal of Physics: Conference Series* 1067.6 (2018), p. 062017. DOI: 10.1088/1742-6596/1067/6/062017.
- [7] M. Brosi, J. L. Steinmann, E. Blomley, E. Bründermann, M. Caselle, N. Hiller, B. Kehrer, Y.-L. Mathis, M. J. Nasse, L. Rota, M. Schedler, P. Schönfeldt, M. Schuh, M. Schwarz, M. Weber, and A.-S. Müller. “Fast mapping of terahertz bursting thresholds and characteristics at synchrotron light sources”. In: *Phys. Rev. Accel. Beams* 19 (11 2016), p. 110701. DOI: 10.1103/PhysRevAccelBeams.19.110701.

Peer-reviewed publications - coauthor

- [8] A. Papash, M. Brosi, P. Schreiber, T. Boltz, N. Smale, R. Ruprecht, M. Schuh, and A.-S. Müller. “Alpha-Buckets in High Energy Electron Storage Rings (Review of Existing Experiments and Feasibility Studies for Future Developments)”. In: *Advances in Theoretical & Computational Physics* 4.2 (Apr. 2021). DOI: 10.33140/ATCP.04.02.08.
- [9] W. Wang, M. Caselle, T. Boltz, E. Blomley, M. Brosi, T. Dritschler, A. Ebersoldt, A. Kopmann, A. S. Garcia, P. Schreiber, E. Bründermann, M. Weber, A.-S. Müller, and Y. Fang. “Accelerated Deep Reinforcement Learning for Fast Feedback of Beam Dynamics at KARA”. In: *IEEE Transactions on Nuclear Science* 68.8 (2021), pp. 1794–1800. DOI: 10.1109/TNS.2021.3084515.
- [10] T. Harter, C. Füllner, J. N. Kemal, S. Ummethala, J. L. Steinmann, M. Brosi, J. L. Hesler, E. Bründermann, A. S. Müller, W. Freude, S. Randel, and C. Koos. “Generalized Kramers–Kronig receiver for coherent terahertz communications”. In: *Nature Photonics* 14.10 (2020), pp. 601–606. DOI: 10.1038/s41566-020-0675-0.
- [11] S. Bielawski, E. Blomley, M. Brosi, E. Bründermann, E. Burkard, C. Evain, S. Funkner, N. Hiller, M. J. Nasse, G. Niehues, E. Roussel, M. Schedler, P. Schönfeldt, J. L. Steinmann, C. Sz waj, S. Walther, and A.-S. Müller. “From self-organization in relativistic electron bunches to coherent synchrotron light: observation using a photonic time-stretch digitizer”. In: *Scientific Reports* 9.1 (2019). DOI: 10.1038/s41598-019-45024-2.
- [12] B. Kehrer, M. Brosi, J. L. Steinmann, E. Blomley, E. Bründermann, M. Caselle, S. Funkner, N. Hiller, M. J. Nasse, G. Niehues, L. Rota, M. Schedler, P. Schönfeldt, M. Schuh, P. Schütze, M. Weber, and A.-S. Müller. “Synchronous detection of longitudinal and transverse bunch signals at a storage ring”. In: *Phys. Rev. Accel. Beams* 21 (10 2018), p. 102803. DOI: 10.1103/PhysRevAccelBeams.21.102803.
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- [14] M. Caselle, L. A. Perez, M. Balzer, A. Kopmann, L. Rota, M. Weber, M. Brosi, J. Steinmann, E. Bründermann, and A.-S. Müller. “KAPTURE-2. A picosecond sampling system for individual THz pulses with high repetition rate”. In: *Journal of Instrumentation* 12.01 (2017), p. C01040. DOI: 10.1088/1748-0221/12/01/c01040.
- [15] P. Schönfeldt, M. Brosi, M. Schwarz, J. L. Steinmann, and A.-S. Müller. “Parallelized Vlasov-Fokker-Planck solver for desktop personal computers”. In: *Phys. Rev. Accel. Beams* 20 (3 2017), p. 030704. DOI: 10.1103/PhysRevAccelBeams.20.030704.
- [16] J. L. Steinmann, E. Blomley, M. Brosi, E. Bründermann, M. Caselle, J. L. Hesler, N. Hiller, B. Kehrer, Y.-L. Mathis, M. J. Nasse, J. Raasch, M. Schedler, P. Schönfeldt, M. Schuh, M. Schwarz, M. Siegel, N. Smale, M. Weber, and A.-S. Müller. “Frequency-Comb Spectrum of Periodic-Patterned Signals”. In: *Phys. Rev. Lett.* 117 (17 2016), p. 174802. DOI: 10.1103/PhysRevLett.117.174802.

Invited talks

- [17] M. Brosi, F. Cullinan, Å. Andersson, J. Breunlin, and P. F. Tavares. “Investigating the transverse mode-coupling instability at the MAX IV 3 GeV storage ring”. In: *9th Low Emittance Rings Workshop 2024, I.FAST*. CERN, Geneva (Switzerland), 2024. URL: https://indico.cern.ch/event/1326603/contributions/5774699/attachments/2800462/4885534/2024-02-14_LERworkshop_mbrosi.pdf.
- [18] M. Brosi, Å. Andersson, J. Breunlin, F. Cullinan, D. K. Olsson, and P. F. Tavares. “Diagnosing collective effects in the MAX IV storage rings”. In: *I.FAST Workshop 2022: Beam diagnostics and dynamics in ultra-low emittance rings*. Karlsruhe, Germany, 2022.
- [19] M. Brosi. “Overview of the Micro-Bunching Instability in Electron Storage Rings and Evolving Diagnostics”. In: *Proc. IPAC’21* (Campinas, SP, Brazil). International Particle Accelerator Conference 12. JACoW Publishing, Geneva, Switzerland, Aug. 2021, THXA02, pp. 3686–3691. DOI: 10.18429/JACoW-IPAC2021-THXA02.

- [20] M. Brosi. “Studies of the longitudinal Micro-Bunching Instability at KARA”. In: *ARIES Workshop: “Beam Tests and Commissioning of Low Emittance Storage Rings”*. Karlsruhe, Germany, 2019.

Publications on international conferences - main author

- [21] M. Brosi, Å. Andersson, J. Breunlin, F. Cullinan, and P. Tavares. “Time-resolved measurement and simulation of a longitudinal single-bunch instability at the MAX IV 3 GeV ring”. In: *Proc. IPAC’23 (Venezia)*. IPAC’23 - 14th International Particle Accelerator Conference 14. JACoW Publishing, Geneva, Switzerland, May 2023, pp. 2642–2645. DOI: doi:10.18429/jacow-ipac2023-wepa020.
- [22] M. Brosi, S. Bielawski, C. Evain, A.-S. Müller, E. Roussel, P. Schreiber, and C. Szwaj. “Simulations of the Micro-Bunching Instability for SOLEIL and KARA Using Two Different VFP Solver Codes”. In: *Proc. IPAC’22 (Bangkok, Thailand)*. International Particle Accelerator Conference 13. JACoW Publishing, Geneva, Switzerland, July 2022, WEPOMS005, pp. 2237–2240. DOI: 10.18429/JACoW-IPAC2022-WEPOMS005.
- [23] M. Brosi. “Overview of the Micro-Bunching Instability in Electron Storage Rings and Evolving Diagnostics”. In: *Proc. IPAC’21 (Campinas, SP, Brazil)*. International Particle Accelerator Conference 12. JACoW Publishing, Geneva, Switzerland, Aug. 2021, THXA02, pp. 3686–3691. DOI: 10.18429/JACoW-IPAC2021-THXA02.
- [24] M. Brosi, P. Schreiber, M. Schuh, and A.-S. Müller. “Influence of Different Beam Energies on the Micro-Bunching Instability”. In: *Proc. IPAC’21 (Campinas, SP, Brazil)*. International Particle Accelerator Conference 12. JACoW Publishing, Geneva, Switzerland, Aug. 2021, WEPAB246, pp. 3209–3212. DOI: 10.18429/JACoW-IPAC2021-WEPAB246.
- [25] M. Brosi, E. Blomley, T. Boltz, E. Bründermann, M. Caselle, S. Funkner, B. Kehrer, M. J. Nasse, G. Niehues, M. Patil, L. Rota, P. Schreiber, M. Schuh, J. L. Steinmann, M. Weber, and A. S. Müller. “Studies of the longitudinal microbunching instability at KARA”. English. In: *Beam Tests and Commissioning of Low Emittance Rings - Proceedings ARIES-ICFA Workshop*. 2019, pp. 57–58. DOI: 10.5281/zenodo.3889903.
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- [31] S. Maier, M. Brosi, H. Cha, A. Mochihashi, A.-S. Müller, M. Nasse, P. Schreiber, and M. Schwarz. “Simulation studies on longitudinal beam dynamics manipulated by corrugated structures under different bunch length conditions at KARA”. In: *Proc. IPAC'23 (Venezia)*. IPAC'23 - 14th International Particle Accelerator Conference 14. JACoW Publishing, Geneva, Switzerland, May 2023, pp. 3523–3526. DOI: [doi:10.18429/jacow-ipac2023-wep1189](https://doi.org/10.18429/jacow-ipac2023-wep1189).
- [32] M. Apollonio, Å. Andersson, M. Brosi, R. Lindvall, D. Olsson, M. Sjöström, R. Svärd, and P. Tavares. “Improved Emittance and Brightness for the MAX IV 3 GeV Storage Ring”. In: *Proc. IPAC'22 (Bangkok, Thailand)*. International Particle Accelerator Conference 13. JACoW Publishing, Geneva, Switzerland, July 2022, MOPOPT023, pp. 288–291. DOI: [10.18429/JACoW-IPAC2022-MOPOPT023](https://doi.org/10.18429/JACoW-IPAC2022-MOPOPT023).
- [33] M. Apollonio, Å. Andersson, M. Brosi, D. Olsson, P. Tavares, and A. Vorozhtsov. “Beam Dynamics of the Transparent Injection for the MAX IV 1.5 GeV Ring”. In: *Proc. IPAC'22 (Bangkok, Thailand)*. International Particle Accelerator Conference 13. JACoW Publishing, Geneva, Switzerland, July 2022, MOPOPT022, pp. 284–287. DOI: [10.18429/JACoW-IPAC2022-MOPOPT022](https://doi.org/10.18429/JACoW-IPAC2022-MOPOPT022).
- [34] S. Maier, M. Brosi, A. Mochihashi, A.-S. Müller, M. Nasse, P. Schreiber, and M. Schwarz. “Simulation of the Effect of Corrugated Structures on the Longitudinal Beam Dynamics at KARA”. In: *Proc. IPAC'22 (Bangkok, Thailand)*. International Particle Accelerator Conference 13. JACoW Publishing, Geneva, Switzerland, July 2022, WEPOMS006, pp. 2241–2244. DOI: [10.18429/JACoW-IPAC2022-WEPOMS006](https://doi.org/10.18429/JACoW-IPAC2022-WEPOMS006).
- [35] M. Reißig, M. Brosi, E. Bründermann, S. Funkner, B. Härer, A.-S. Müller, G. Niehues, M. Patil, R. Ruprecht, and C. Widmann. “Development of an Electro-Optical Longitudinal Bunch Profile Monitor at KARA Towards a Beam Diagnostics Tool for FCC-ee”. In: *Proc. IPAC'22 (Bangkok, Thailand)*. International Particle Accelerator Conference 13. JACoW Publishing, Geneva, Switzerland, July 2022, MOPOPT025, pp. 296–299. DOI: [10.18429/JACoW-IPAC2022-MOPOPT025](https://doi.org/10.18429/JACoW-IPAC2022-MOPOPT025).
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- [37] J. Steinmann, M. Brosi, E. Bründermann, A. Mochihashi, A.-S. Müller, and P. Schreiber. “Towards Direct Detection of the Shape of CSR Pulses with Fast THz Detectors”. In: *Proc. IPAC'22 (Bangkok, Thailand)*. International Particle Accelerator Conference 13. JACoW Publishing, Geneva, Switzerland, July 2022, WEPOTK057, pp. 2190–2192. DOI: [10.18429/JACoW-IPAC2022-WEPOTK057](https://doi.org/10.18429/JACoW-IPAC2022-WEPOTK057).
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- [40] S. Maier, M. Brosi, A. Mochihashi, A.-S. Müller, M. Nasse, and M. Schwarz. “Impedance Studies of a Corrugated Pipe for KARA”. In: *Proc. IPAC’21* (Campinas, SP, Brazil). International Particle Accelerator Conference 12. JACoW Publishing, Geneva, Switzerland, Aug. 2021, TUPAB251, pp. 2039–2042. DOI: 10.18429/JACoW-IPAC2021-TUPAB251.
- [41] A. Papash, T. Boltz, M. Brosi, A.-S. Müller, R. Ruprecht, P. Schreiber, M. Schuh, and N. Smale. “On Possibility of Alpha-buckets Detecting at the KIT Storage Ring KARA (Karlsruhe Research Accelerator)”. In: *Proc. IPAC’21* (Campinas, SP, Brazil). International Particle Accelerator Conference 12. JACoW Publishing, Geneva, Switzerland, Aug. 2021, MOPAB037, pp. 167–170. DOI: 10.18429/JACoW-IPAC2021-MOPAB037.
- [42] A. Papash, M. Brosi, E. Huttel, A. Mochihashi, A.-S. Müller, R. Ruprecht, P. Schreiber, M. Schuh, and N. Smale. “Different Operation Regimes at the KIT Storage Ring KARA (Karlsruhe Research Accelerator)”. In: *Proc. IPAC’21* (Campinas, SP, Brazil). International Particle Accelerator Conference 12. JACoW Publishing, Geneva, Switzerland, Aug. 2021, MOPAB036, pp. 163–166. DOI: 10.18429/JACoW-IPAC2021-MOPAB036.
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- [44] J. Steinmann, E. Blomley, M. Brosi, E. Bründermann, A. Mochihashi, A.-S. Müller, M. Schuh, and P. Schönfeldt. “Increasing the Single-Bunch Instability Threshold by Bunch Splitting Due to RF Phase Modulation”. In: *Proc. IPAC’21* (Campinas, SP, Brazil). International Particle Accelerator Conference 12. JACoW Publishing, Geneva, Switzerland, Aug. 2021, WEPAB240, pp. 3193–3196. DOI: 10.18429/JACoW-IPAC2021-WEPAB240.
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