Research output list

If not specifically indicated otherwise, the following research list is in alphabetical order. In all subsequent research output, I contributed at the level of first or second author, conducted the computations, (co-)led the writing, and developed the main ideas of the project.

Journal articles

[22] J. Österman, **P. Schicho**, and A. Vuorinen, *Integrating by parts at finite density*, (2023), [2304.05427].

[21] L. Sagunski, **P. Schicho**, and D. Schmitt, *Supercool exit: Gravitational waves from QCD-triggered conformal symmetry breaking*, (2023), [2303.02450].

[20] A. Ekstedt, **P. Schicho**, and T. V. I. Tenkanen, `DRalgo`*: A package for effective field theory approach for thermal phase transitions*, Comput. Phys. Commun. **288**, 108725 (2023), [2205.08815].

[19] T. Gorda, A. Kurkela, J. Österman, R. Paatelainen, S. Säppi, **P. Schicho**, K. Seppänen, and A. Vuorinen, *Degenerate fermionic matter at N3LO: Quantum electrodynamics*, Phys. Rev. D **107**, L031501 (2023), [2204.11893].

[18] T. Gorda, A. Kurkela, J. Österman, R. Paatelainen, S. Säppi, **P. Schicho**, K. Seppänen, and A. Vuorinen, *Soft photon propagation in a hot and dense medium to next-to-leading order*, Phys. Rev. D **107**, 036012 (2023), [2204.11279].

[17] **P. Schicho**, T. V. I. Tenkanen, and G. White, *Combining thermal resummation and gauge invariance for electroweak phase transition*, JHEP **11**, 047 (2022), [2203.04284].

[16] S. Biondini, **P. Schicho**, and T. V. I. Tenkanen, *Strong electroweak phase transition in t-channel simplified dark matter models*, JCAP **10**, 044 (2022), [2207.12207].

[15] J. Hirvonen, J. Löfgren, M. J. Ramsey-Musolf, **P. Schicho**, and T. V. I. Tenkanen, *Computing the gauge-invariant bubble nucleation rate in finite temperature effective field theory*, JHEP **07**, 135 (2022), [2112.08912].

[14] J. Ghiglieri, G. D. Moore, **P. Schicho**, and N. Schlusser, *The force-force-correlator in hot QCD perturbatively and from the lattice*, JHEP **02**, 58 (2022), [2112.01407].

[13] J. Löfgren, M. J. Ramsey-Musolf, **P. Schicho**, and T. V. I. Tenkanen, *Nucleation at finite temperature: a gauge-invariant, perturbative framework*, (2021), [2112.05472].

[12] L. Niemi, **P. Schicho**, and T. V. I. Tenkanen, *Singlet-assisted electroweak phase transition at two loops*, Phys. Rev. D **103**, 115035 (2021), [2103.07467].

[11] D. Croon, O. Gould, **P. Schicho**, T. V. I. Tenkanen, and G. White, *Theoretical uncertainties for cosmological first-order phase transitions*, JHEP **04**, 055 (2021), [2009.10080].

[10] **P. M. Schicho**, T. V. I. Tenkanen, and J. Österman, *Robust approach to thermal resummation: Standard Model meets a singlet*, JHEP **06**, 130 (2021), [2102.11145].

[9] M. Laine, **P. Schicho**, and Y. Schröder, *A QCD Debye mass in a broad temperature range*, Phys. Rev. D **101**, 023532 (2020), [1911.09123].

[8] M. Laine, **P. Schicho**, and Y. Schröder, *Soft thermal contributions to 3-loop gauge coupling*, JHEP **2018**, 37 (2018), [1803.08689].

Conference proceedings

[7] G. Aarts, J. Aichelin, C. Allton, A. Athenodorou, D. Bachtis, C. Bonanno, N. Brambilla, E. Bratkovskaya, M. Bruno, M. Caselle, C. Conti, R. Contino, L. Cosmai, F. Cuteri, L. Del Debbio, M. D'Elia, P. Dimopoulos, F. Di Renzo, T. Galatyuk, J. N. Guenther, R. Houtz, F. Karsch, A. Y. Kotov, M. P. Lombardo, B. Lucini, L. Maio, M. Panero, J. M. Pawlowski, A. Pelissetto, O. Philipsen, A. Rago, C. Ratti, S. M. Ryan, F. Sannino, C. Sasaki, **P. Schicho**, C. Schmidt, S. Sharma, O. Soloveva, M. Sorba, and U.-J. Wiese. *Phase Transitions in Particle Physics – Results and Perspectives from Lattice Quantum Chromo-Dynamics*. In (Jan. 2023). [2301.04382].

[6] M. Fraser, D. Björkman, K. Cornelis, B. Goddard, V. Kain, **P. Schicho**, C. Theis, and H. Vincke. *Modelling the Radioactivity Induced by Slow-Extraction Losses in the CERN SPS*. In *Proc. of International Particle Accelerator Conference (IPAC'17)* (May 2017), 1897–1900.

[5] M. A. Fraser, R. G. Alia, B. Balhan, H. Bartosik, C. Bertone, D. Björkman, J. Borburgh, N. Conan, K. Cornelis, L. Gatignon, B. Goddard, Y. Kadi, V. Kain, A. Mereghetti, F. Roncarolo, **P. M. Schicho**, J. Spanggaard, O. Stein, L. Stoel, F. M. Velotti, and H. Vincke. *SPS Slow Extraction Losses and Activation: Challenges and Possibilities for Improvement*. In *Proc. of International Particle Accelerator Conference (IPAC'17)* (Copenhagen. 2017), 611–614.

Theses

[4] **P. M. Schicho**, *Multi-loop investigations of strong interactions at high temperatures*, PhD thesis (U. Bern, 2020).

[3] **P. M. Schicho**, *Inhomogeneous condensation in quark-based QCD effective models via wavelet pseudoparticles*, MA thesis (ETH Zürich, 2016).

[2] **P. Schicho**, *π- and ρ-Meson mass spectroscopy from Lattice QCD*, BA thesis (TU Graz, 2014).

[1] **P. Schicho**, *Increasing the sensitivity of a search for supersymmetry in the single lepton channel with the Stransverse Mass*, Project thesis (HEPHY Vienna, 2014).

Invited talks at workshops

05/12/2022 *EFT framework for (precision) cosmological phase transition thermodynamics*, invited **planary** talk at *What the heck happens when the Universe boils?* at Kavli IPMU, Tokyo, Japan

Seminar and contributed talks

25/01/2023 *Degenerate fermionic matter at N^3LO*, invited seminar talk at Gravitation and Cosmology seminar, Utrecht University, Netherlands

24/01/2023 *What can EFT tell us about the electroweak phase transition?*, seminar talk at CRC-TR211 meeting and Colloquium, Bielefeld University, Germany

08/11/2022 *EFT framework for cosmological phase transition thermodynamics*, seminar talk at the AstroCoffee, Goethe University, Frankfurt, Germany

13/10/2022 *Degenerate fermionic matter at N^3LO*, invited seminar talk (online) at S@INT seminar, INT, Seattle, USA

15/09/2022 *(Gauge independent) Bubble nucleation rate at finite temperature*, invited seminar talk at Jožef Stefan Institute, Ljubljana, Slovenia

24/08/2022 *Can EFT tell us if there was an electroweak phase transition?*, invited seminar talk at University of Graz, Graz, Austria

11/07/2022 *Soft light-cone observables from electrostatic QCD*, invited seminar talk (online) at the QCD theory seminar

07/07/2022 *Degenerate fermionic matter at N^3LO*, invited seminar talk at the Nuclear Physics Colloquium, Goethe University, Frankfurt, Germany

20/06/2022 *Jet dispersion in hot QCD from the lattice*, contributed talk at SEWM 2022, Paris, France

16/06/2022 *Can EFT tell us if there was an electroweak phase transition?*, invited seminar talk at SUBATECH, Nantes, France

31/05/2022 *Electroweak phase transition: Combining thermal resummation and gauge invariance*, invited seminar talk at NICPB, Tallinn University, Estonia

24/05/2022 *Combining thermal resummation and gauge invariance for electroweak phase transition*, invited seminar talk (online) at School of Physics and Astronomy, Monash University, Australia

06/04/2022 *(Non-)perturbative jet dispersion hot QCD*, contributed talk at Quark Matter 2022, Kraków, Poland

30/03/2022 *(Non-)perturbative jet dispersion hot QCD*, contributed talk at Mini workshop: Phase transitions in particle physics, Galileo Galilei Institute, Firenze, Italy

03/03/2022 *Effective theory approach to cosmological phase transitions*, invited seminar talk at Instituto de Astrofísica de Canarias, La Laguna, Spain

28/10/2021 *Gauge independent bubble nucleation rate at finite temperature*, invited seminar talk at University of Basel, Basel, Switzerland

19/10/2021 *Cosmological phase transition: Robust thermal resummation*, invited seminar talk at University of Bern, Bern, Switzerland

13/05/2021 *Cosmological phase transition: Robust thermal resummation*, invited seminar talk (online) at KIAS, Seoul, South Korea

29/03/2021 *Soft thermal contributions to 3-loop gauge coupling*, contributed parallel talk at FunQCD (online), Barcelona, Spain

25/11/2020 *How to be precise at the electroweak scale at finite-temperature*, invited seminar talk (online) at Kavli IPMU, Tokyo, Japan

13/08/2019 *3-Loop Gauge Coupling in Hot Yang-Mills*, invited seminar talk at Helsinki Institute of Physics, Helsinki, Finland

28/08/2018 *Fun with thermal dimension-six operators*, invited seminar talk at Universidad del Bío-Bío, Chillán, Chile

28/06/2018 *Fun with thermal dimension-six operators*, contributed parallel talk at SEWM 2018, Barcelona, Spain