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Typ: Talk

Enhancement of photon momentum anisotropies during the late stages of relativistic heavy-ion collisions

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We present a consistent photon production calculation from hadronic cross sections, including bremsstrahlung and 2-to-2 reactions, matching the usually employed thermal rates [1,2]. Using the hadronic transport approach SMASH as the afterburner for the hadronic stage at RHIC and LHC energies, we find a significant increase in the calculated momentum anisotropies of these photons due to microscopic non-equilibrium dynamics. This enhancement is found in comparison to standard calculations, which rely on the folding of equilibrium rates to a hydrodynamical evolution. Once combined with photons produced above the particlization temperature in the hydrodynamical evolution, the differences between the two approaches are modest regarding p_{\perp} -differential spectra, but are clearly noticeable at low p_{\perp} for the elliptic flow: non-equilibrium dynamics enhance the photon v_2 below $p_{\perp} \approx 1.5$ GeV.

References

- [1] A. Schäfer, O. G-M., J-F. Paquet, H. Elfner, and C. Gale. Phys.Rev.C 105 (2022) 4, 044910, arXiv: 2111.13603
- [2] A. Schäfer, J. M. Torres-Rincon, J. Rothermel, N. Ehlert, C. Gale and H. Elfner. Phys.Rev.D 99 (2019) 11, 114021. arXiv: 2111.13603

Experiment/Theory

Theory/Phenomenology

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