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Jets in non-equilibrium quark-gluon plasma

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In this talk we study jets in non-equilibrium quark-gluon plasma using new theoretical tools developed for photons [1]. Jets broaden through radiation which is suppressed because of coherent interaction with the medium. We analyze this radiation when the medium is not in thermal equilibrium. Jet observables can then be used to gain direct access to non-equilibrium properties of the QGP, such as its shear viscosity and other transport coefficients. As an example we consider the anisotropic plasma formed in early stages of heavy-ion collisions [2]. Momentum broadening is reduced in the direction of the anisotropy which affects the rapidity dependence of jet observables. Finally, we discuss how to generalize our calculation to higher anisotropy where momentum broadening becomes singular because of rapid growth in gluon density. This requires us to incorporate background chromomagnetic fields.

[1] S. Hauksson, S. Jeon, C. Gale, Phys. Rev. C 79, 014901 (2018)

[2] P. Romatschke, M. Strickland, Phys. Rev. D 68, 036604 (2003)

Summary

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