XLVII International Symposium on Multiparticle Dynamics (ISMD2017)
September 11-15, 2017, Tlaxcala City, Mexico

Contribution ID : **57** Type : **not specified**

Medium response to jets in heavy ion collisions

Friday, 15 September 2017 10:15 (0:25)

Content

We study the modification of the jet structures in the quark-gluon plasma (QGP) fluid including the effect of the medium response. The jet structures in heavy ion collisions are significantly modified by the processes involving strong interactions with the QGP fluid, i.e., collisional energy loss, transverse-momentum broadening, and induced parton radiation. The energy and momentum are deposited into the QGP medium via the collisional energy loss and the transverse-momentum broadening due to the energy-momentum conservation. The deposited energy and momentum is supposed to cause flows propagating with the jets as the hydrodynamic medium response to jets in the QGP. Particles originating from the jet-induced flows are observed as a part of the jets in the actual experiments, and contribute to the modification of the full jet structures. Studying this contribution is not only important for the precise interpretation of the experimental data but also provides an opportunity to investigate the collective response of the QGP.

Session

Collectivity in high energy collisions

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Session Classification : Collectivity in high energy collisions: jets, flow and other aspects (III)