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Dilepton production from strong fields in heavy-ion collisions

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We discuss a new mechanism of dilepton production in heavy-ion collision. In high-energy heavy-ion collisions, there appear two different strong gauge fields. One is the ordinary electromagnetic field, and the other is the color Yang-Mills (gluon) field. In both cases, the strength of the fields is extraordinarily large, and in particular, there are strong magnetic fields and strong color magnetic fields. In the presence of such strong magnetic fields, quarks/antiquarks with electric/color charges will emit radiations of photons (synchrotron radiation), as well as dileptons when the emitted photon is off shell. We compute the spectrum of dilepton created in these processes. This must be added to the ordinary contribution of the dilepton cross sections. (This is a collaboration with Drs. Yoshimasa hidaka, and Kirill Tuchin)

Keywords

dileptons, strong magnetic fields

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