

10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Contribution ID: 92

Type: **Oral Presentation**

Photon radiation in hot nuclear matter by means of chiral anomalies

Thursday 4 June 2020 13:50 (20 minutes)

A new mechanism of photon emission in the quark-gluon plasma is proposed. Photon dispersion relation in the presence of the CP-odd topological regions generated by the chiral anomaly acquires an imaginary mass. It allows photon radiation through the decay $q \rightarrow q\gamma$ and annihilation $q\bar{q} \rightarrow \gamma$ processes closely related to the chiral Cherenkov radiation. Unlike previous proposals this mechanism does not require an external magnetic field. The differential photon emission rate per unit volume is computed and shown to be comparable to the rate of photon emission in conventional processes. The presentation is based on Phys.Rev. C99 (2019) no.6, 064907, Phys.Rev.Lett. 121 (2018) no.18, 182301.

Collaboration (if applicable)

Track

New Theoretical Developments

Contribution type

Contributed Talk

Author: Prof. TUCHIN, Kirill (Iowa State University)

Presenter: Prof. TUCHIN, Kirill (Iowa State University)

Session Classification: Parallel

Track Classification: New Theoretical Developments