

Tuesday

Feb. 21st

At 2:30pm



Radiative Recombination at the Quark-Hadron Phase Transition

Abstract:

Study on photon production in the heavy ion collisions is a key issue for understanding the Quark-Gluon Plasma (QGP) property and the phase transition mechanism from QGP phase to hadron phase, since history of a heavy ion collision is embedded in emitted photons. However, currently we are confronted with “direct-photon puzzle” in experimental data at RHIC and the LHC. We cannot explain both of yields and behavior of collective flow of photons as the same time even the state-of-the-art phenomenological model.

Here we show the “radiative recombination” can be a possible resolution to the direct-photon puzzle. The radiative recombination is a well-known phenomenon in plasma physics. In the mechanism, photon emission occurs when a plasma goes back to a normal state through the recombination process. We construct the improved recombination model in which photon emission is included based on the recombination model developed by the Duke group. The model gives us not only reasonable explanation for photon production at RHIC and the LHC but also a solution to violation of energy and entropy conversion in the conventional recombination model.

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Refreshments will be
served at 2:15pm



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