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The Emission of Electromagnetic Radiation From the Early Stages of Relativistic Heavy-ion Collisions JESSICA CHURCHILL, McGill Univ, LI YAN, Institute of Modern Physics, SANGYONG JEON, CHARLES GALE, McGill Univ — A notable achievement of relativistic heavy-ion studies is the realization that relativistic fluid dynamics can describe the evolving system of quark-gluon plasma (QGP) from its early moments to a time when the growing mean-free-paths drive the system out of equilibrium. The effectiveness of this description is judged by comparing calculated observables with experimental measurements. Electromagnetic radiation is considered a distinguishing signal as it is emitted throughout the evolution of the hadronic system. Considerable work has gone into the calculation of photons and dileptons using modern hydrodynamic approaches, however, the calculation of the electromagnetic emissivity of the early stage is currently less advanced. In this talk, we estimate the production of electromagnetic radiation from the early, pre-equilibrium, stage of relativistic heavy-ion collisions using the parton dynamics obtained as a solution of the Boltzmann equation in the Fokker-Planck diffusion limit. The photon and dilepton yield is calculated and compared with available experimental data. The pre-equilibrium electromagnetic contribution can be non-negligible at the current LHC energies, depending on the saturation scale. Predictions are made for Pb+Pb at $\sqrt{s_{\rm NN}} = 5.02$ TeV.

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