

Using a Classical Gluon Cascade to study the Equilibration of a Gluon-Plasma

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Using a classical gluon cascade, we study the thermalisation of a gluon-plasma in a homogeneous box by considering the time evolution of the entropy, and in particular how the thermalisation time depends on the strong coupling constant. We then partition the volume into cells with a linearly increasing temperature gradient in one direction, and homogeneous/isotropic in the other two directions. We allow the gluons to stream in one direction in order to study how they then evolve spatially. We examine cases with and without collisions. We study the entropy as well as the flow-velocity in the z-direction and find that the system initially has a flow which dissipates over time as the gluons become distributed homogeneously throughout the box.

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