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Transport Properties of Quark-Gluon Plasma in Magnetic Fields

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Motivated by a strong, transient magnetic field that may affect the Quark-Gluon Plasma formed in off-central heavy-ion collisions, we present our recent progress on the computation of several key transport properties of the Quark-Gluon Plasma in the presence of magnetic field, in leading order of perturbative QCD that is applicable in high enough temperature.
These include the longitudinal electric conductivity, the sphaleron transition rate, the jet-quenching parameter, and the heavy quark diffusion constant in the case of a strong magnetic field ($eB \gg T^2$), as well as the shear viscosity in a soft magnetic field ($eB \sim g^4 \log(1/g) T^2$).

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