

Dynamic Strong Magnetic Field for Quark Gluon Plasma Equation of State

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We study the equation of state of quark gluon plasma (QGP) with dynamic strong and intense magnetic field. This magnetic field is expected to be generated due to the collisions of massive nuclei at relativistic heavy ion collider and large hadron collider. To get a deeper understanding of QGP physical picture, we use a quasi-particle model with various initial conditions. The calculation results with quasi-particle model are found to be significant not only in the presence of static magnetic field but also provide significant contribution for dynamic magnetic field. We compare results with and without dynamic magnetic field. The results of QGP equation of state with dynamic magnetic field give deeper insights into QGP. Therefore, the current investigation of the QGP equation of state gives unique insights into the development of heavy ion collisions, early universe and various other properties of quark matter under extreme conditions. The model work is thus useful for theoreticians and experimentalists to understand QGP better.

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