Abstract: Study of Quark-Gluon plasma (QGP) has been a very active area of research in high energy physics since last four decades. This article gives an elementary introduction to QGP. It covers the motivation to study QGP, its abundance in nature, experimental status, production mechanism, signatures and modelling dynamics. We have discussed the medium effects in QGP in terms of response functions, heavy quark potential and Landau damping. Some other recent approaches are also discussed.

Keywords: QCD, Partons, Quark deconfinement, heavy-Ion collision, Quark-Gluon plasma.

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1. Introduction
The quest for the most elementary constituents of matter is going on since ancient
times, from philosophical as well as scientific points of view. Until the nineteenth century
atoms were believed to be the ultimate constituents of matter. At the beginning of the
twentieth century Thomson, Rutherford, and Chadwick experimentally discovered that
atoms are made of electrons, protons, and neutrons respectively. Subsequently, many
more particles like the muon, the neutrinos and strongly interacting particles –
collectively called the hadrons – have been discovered. After analyzing the symmetry
properties of the then known hadrons in 1964 Murray Gellmann and Zweig independently
proposed that hadrons are made of quarks and anti-quarks. Deep inelastic scattering
(DIS) experiments confirmed their existence, as also of the gluons. Currently the
experimentally confirmed ultimate constituent particles of matter are quarks and
leptons, with their associated gauge bosons.

Let us address another question. What will be the form of matter at very large
density? Most of the space inside an atom is empty, and if we compress matter, first
the atomic picture will be lost. Further compression will cause coalescence of nuclei,
then coalescence of nucleons and at the end the nuclear picture of matter is lost. We
will be left with quark matter. Now consider a kinematical situation when we collide two
particles (at least one of them is a hadron) at very high energy such that the
momentum transfer in the process is very large; so the interaction between them takes
place within a distance which is lesser than the diameter of a hadron. In such
condition the interaction between colliding particles mainly occur due to the quark and
gluon components of hadron. This is the key idea of DIS experiments which are done