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An overview of recent results from heavy-ion experiments

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One of the major areas of high-energy physics is the study of nuclear matter under extreme conditions. At high temperatures and/or high net-baryon densities, a state of strongly-interacting matter, the quark–gluon plasma (QGP), in which quarks and gluons are no longer confined in hadrons, is formed. This state of matter existed just a few microseconds after the Big Bang and might exist in the core of neutron stars. The study of the properties of the QGP as well as the nature of the transition from the ordinary hadron gas phase to the QGP allows us to gain a deeper understanding of the strong nuclear force, described by quantum chromodynamics. Heavy-ion collisions at varying beam energies provide us access to large regions of the phase diagram of strongly-interacting matter. In this overview, a selection of recent results from heavy-ion experiments at the LHC, RHIC and lower energies will be discussed.

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