

## **Highlights from 30 Years of Quark Matter Research**

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The aim of ultra-relativistic heavy ion physics is the study of strongly interacting matter under extreme conditions of high temperature and/or high matter density using collisions of heavy nuclei. QCD predicts that at sufficiently high energy density there will be a transition from ordinary hadronic matter to a plasma of deconfined quarks and gluons - a transition which took place in the early universe a few microseconds after the Big Bang and which might still play a role today in compact stellar objects. Over the short time span of 30 years, experiments evolved from light ion collisions at low energy at the Brookhaven AGS and the CERN SPS accelerators over the first dedicated heavy ion accelerator, RHIC, to the CERN LHC, which in 2010 opened a new era in ultra-relativistic heavy ion physics with Pb-Pb collisions at energies exceeding the original ones by up to three orders of magnitude. This talk summarizes highlights and insights gained from those 3 decades of study of hot and dense matter, the Quark Gluon Plasma.