Theoretical Physics Seminars

Spectral and transport responses of quark and hadronic matter

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It is believed that up to a few microseconds after the Big Bang, the universe was in a state of quark matter followed by hadronic matter, with temperatures much larger than the temperature of the Sun. The experiments of heavy ion collisions like RHIC at BNL, USA and LHC at CERN, Switzerland have successfully produced this kind of an artificial baby universe, having a temperature of the order of a trillion degrees Kelvin, which is considered as the highest man-made temperature till now. Our studies focus on this early universe state by investigating its in-medium spectral and transport responses, where quantum field theory at finite temperature is used as the main mathematical tool. The investigation on spectral responses is aimed at explaining the so called "low mass dilepton enhancement", as a signature of the medium, whereas the studies of transport responses have tried to probe the (nearly) perfect fluid nature of such a medium.

All are welcome