APR18-2018-020019

Abstract for an Invited Paper
for the APR18 Meeting of
the American Physical Society

High Baryon Densities in Terrestrial Experiments[1]

FRANK GEURTS, Rice University

Over the past few decades a concerted effort has been taking place at several accelerator facilities to create a hot and dense state of QCD matter by colliding heavy ions at ultra-relativistic energies. Lattice QCD calculations suggest that at sufficiently high energies hadrons melt into their constituent quarks, thus forming a Quark Gluon Plasma. The versatility of these accelerators allows for a systematic scan through a wide range of collision species and energies. Model calculations suggest that such a scan provides access to regions of the QCD phase diagram where a first-order phase transition and/or a critical point are located. In this contribution, I will review recent results from SIS18 at GSI, the SPS at CERN and the Beam Energy Scan at RHIC at BNL as well as prospects for future studies at RHIC, FAIR, NICA, J-PARC and the SPS.

[1]This work is supported by the US Department of Energy under grant DE-SC0005131