

THEORETICAL PHYSICS SEMINAR

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Title: Supercomputing the properties of quark gluon plasma

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Date/Time/Venue: 15th September (Tuesday)/2:30 PM/ Room No. 469

ABSTRACT

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Lattice QCD is the study of QCD, the theory of the strong force, in its non-perturbative regime through the use of powerful supercomputers. In this talk, I will describe its application to the study of the properties of the quark-gluon plasma, which is a new state of matter created through the collision of heavy nuclei. Here, lattice QCD can not only provide quantitative estimates of the pressure, energy density, etc. but, by varying the quark masses for example, also shed light on the nature and order of the phase transition.

Recently, the RHIC experiment at Brookhaven Lab launched its Beam Energy Scan program. The goal of this program is to look for the famous QCD critical point that is conjectured to exist at some moderately large value of the chemical potential. We believe that lattice QCD can make important contributions to this program. I will touch upon some of our recent results in this context and describe what should be possible to do in the near future.

All are welcome to attend