

Physics Colloquium

Monday January 30th, 2006

4:15 PM 428 Pupin Hall

Professor Frithjof Karsch

of BNL

“Lattice Gauge Theory and Heavy Ion Collisions”

This year is the 25th anniversary of the first numerical studies of the properties of strongly interacting elementary particle matter under extreme conditions, i.e. at high temperature and density. Over the years we learned a lot about the properties of such matter from calculations performed within the framework of lattice regularized Quantum Chromo Dynamics (lattice QCD).

In my talk I will present results from some numerical calculations performed to understand the nature of the phase transition from hadronic matter to the quark gluon plasma, the equation of state at high temperature and density as well as the properties of heavy quark bound states. I will discuss to what extent these calculations provide a basis for the interpretation (understanding) of experimental result on the properties of dense matter created in heavy ion collisions.



Host: Professor Christ