

Department of Theoretical Physics

Free Meson Seminar

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| <i>Speaker</i> | : | Larry McLerran (Brookhaven National Laboratory, Upton, NY, USA) |
| <i>Topic</i> | : | QCD at Finite T and Baryon Density in Large N_c |
| <i>Day, Date & Time</i> | : | Thursday, January 31, 2008 at 2:30 p.m. |
| <i>Place</i> | : | AG 69 |

Abstract

I discuss the phase diagram of QCD in the limit of a large number of colors, N_c . For fixed N_f , there are at least three distinct phases characterized by the number of color degree of freedom. In confined mesonic matter, the number of degrees of freedom is $O(1)$. In the unconfined, it is $O(N_c^2)$. Another phase, the quarkyonic is confined but has the number of degrees of freedom of free quarks. At large N_f with N_f/N_c fixed, there are two phases, the mesonic and the quarkyonic, which are characterized by an order parameter, the baryon number density. I argue for various possible relationships between these pictures and our current understanding of QCD at finite T and baryon density.

(Saumen Datta)