

## D-MEASURE AS A VIABLE SIGNAL OF QGP FROM POLYAKOV-NAMBU-JONA-LASINIO MODEL

Strongly interacting matter at high temperatures and densities is expected to go through a phase transition from hadronic to Quark-Gluon-Plasma phase. It is quite interesting to comprehend signals of the same. From theoretical calculations, it is obvious that fractional charges carried by quarks gives rise to such a viable signal. This leads to construct a quantity, D-measure [1] which is the ratio of the net charge fluctuation to the total charge and is expected to provide a signature of the aforesaid transition.

To perceive the same, the behavioural pattern of D [2] is studied with variation of temperature and chemical potential.

Our work is carried out within the framework of the Polyakov-Nambu-Jona-Lasinio (PNJL) model [4-7] and the results are presented.

[1] S. Jeon and V. Koch, Phys. Rev. Lett. 85, 2076 (2000)

[2] A. Bhattacharyya, S. Das, S.K.Ghosh, S. Raha, R. Ray, K. Saha and S. Upadhaya  
arXiv:1212.6010v1 (2012)

[3] B. Abelev et. al. arXiv : 1207.6068 (2012)

[4] S. K. Ghosh, T. K. Mukherjee, M.G.Mustafa and R. Ray, Phys. Rev. D, 73, 114007 (2006)

[5] S. Mukherjee, M.G.Mustafa and R.Ray, Phys. Rev. D, 75, 094015 (2007)

[6] S.K.Ghosh, T.K.Mukherjee, M.G.Mustafa and R.Ray, Phys. Rev. D, 77, 094024 (2008)

[7] C. Ratti, M.A.Thaler and W.Weise, Phys. Rev. D, 73, 014019 (2006)

**Primary author:** Mr SAHA, Kinkar (Bose Institute)

**Co-authors:** Dr BHATTACHARYYA, Abhijit (University of Calcutta); Dr RAY, Rajarshi (Bose Institute); Prof. GHOSH, Sanjay K. (Bose Institute); Prof. RAHA, Sibaji (Bose Institute); Ms UPADHAYA, Sudipa (Bose Institute); Dr DAS, Supriya (Bose Institute)

**Presenter:** Mr SAHA, Kinkar (Bose Institute)