



Contribution ID: 287

Type: Talk

## On curing the divergences in the quark number susceptibility

*Monday, 23 June 2014 17:50 (20 minutes)*

Quark number susceptibility on the lattice, obtained by merely adding a  $\mu N$ -term with  $\mu$  as the chemical potential and  $N$  as the conserved quark number, has a quadratic divergence in the cut-off  $a$ . We show that it is simply a faithful representation of the corresponding continuum result. While one can eliminate it in the free theory by suitably modifying the action, as is popularly done, it can simply be subtracted off as well. Computations of higher order susceptibilities, needed for estimating the location of the QCD critical point, then need a lot fewer number of quark propagators are at any order. We show that in the interacting theory this method of divergence removal works.

**Primary author:** Prof. GAVAI, Rajiv (Tata Institute of Fundamental Research)

**Co-author:** Dr SHARMA, Sayantan (Bielefeld University)

**Presenter:** Prof. GAVAI, Rajiv (Tata Institute of Fundamental Research)

**Session Classification:** Nonzero temperature and Density

**Track Classification:** Nonzero Temperature and Density