

Area Seminar

Title	Effective model study of low lying scalar mesons and Chiral phase transition
Date and Time	17/04/2014 16:00:00
Speaker	Dr. Tamal K. Mukherjee
Area	Theoretical Physics
Venue	Room No. 469
Abstract	<p>In the framework of linear sigma model we study the effect of mixing between effective quarkonium and tetraquark as well as scalar glueball fields on the composition of low lying scalar meson (with mass below 2 GeV) and its implication to the chiral phase transition. Based on our study we will comment on what may be the mass of the lowest possible scalar and pseudoscalar glueball states. We will also discuss on what may be the nature of the sigma or $f_0(600)$ meson. With respect to the chiral phase transition we find the physical mass spectrum of mesons put a tight constraint on the parameter set of our model. We find a sufficiently strong cubic self interaction of the tetraquark field can drive the chiral phase transition to first order even at zero quark chemical potential. Weak or absence of the cubic self interaction term of the tetraquark field make the chiral phase transition crossover at vanishing density.</p>