Title:	Simulations of Bosonic BMN Matrix Model
Authors:	Mev, Adeeb
Keywords:	Simulations Bosonic BMN Matrix Model
Issue Date:	May-2020
Publisher:	IISERM
Abstract:	In this thesis we provide the results obtained through lattice Monte Carlo simula- tions of the bosonic BMN and the bosonic BFSS matrix models. The simulations are performed using Hybrid Monte Carlo (HMC) algorithm. The BMN matrix model is expected to have a Hagedorn/deconfinement type phase transition as the temperature is varied in the system. The Polyakov loop is used as an order parameter for detecting the phase transition. Besides the Polyakov loop, other prime observables such as the internal energy and the extent of space were also computed. We also check the valid- ity of numerical simulation algorithms by exploring the behavior of various relevant toy models. As the main result of this thesis, we present a parametrized phase diagram of the bosonic BMN matrix model constructed using two dimensionless parameters: a di- mensionless coupling constant and a dimensionless temperature.
URI:	http://hdl.handle.net/123456789/1411
Appears in Collections:	MS-15

Files in This Item:

File	Size	Format	
MS15058.pdf	1.45 MB	Adobe PDF	View/Open

Show full item record