DMRG Analysis for Arbitrary Densities  

FATIH DOGAN, FRANK MARSIGLIO, University of Alberta, Edmonton, Canada — DMRG (Density-Matrix-Renormalization-Group) method provides an accurate analysis of 1D systems that otherwise cannot be solved exactly. The method has now been applied to many spin and fermion systems. However, it was restricted to magical densities, single particle or quarter or half filling. The main reason for this restriction is the use of Grand-Canonical-Ensemble to set the number of fermions. Here, we present our results of a new approach that uses canonical restrictions to obtain arbitrary densities. We applied this method, first to the Attractive Hubbard Model and then the Dynamic Hubbard Model.