Contribution Title: THE LATTICE SPIN MODELS AND HECKE GRAPHS
Authors: M. Monastyrsky
Presenting author: Monastyrsky M.
Affilation: Institute of Theoretical and Experimental Physics
E-mail: monastyrsky@itep.ru
Invited speaker:
YRS seminar: NO

In this talk I discuss two topics.1.The Kramers-Wannier Duality to Spin systems with non-abelian groups of symmetry.This transformation is well known for Potts models with abelian symmetry.The complete solution of this problem for finite and compact groups was found only recently by the author and V. Buchstaber. It solved a longstanding problem and opened new perspectives. For instance, I present a new approach to McKay correspondence for the discrete subgroups of $SL(2, R)$.This class of group relates with so called Hecke groups, discrete subgroups G of $SL(2, R)$ with finite volume of the fundamental domain of G. Another application of graphs generated by Hecke groups relates with the famous Beraha conjecture. The behavior of zeroes of chromatic polynomials is determined by the partition function of Potts model on Hecke graph.