

# FULL SYMMETRIC TODA FLOW AND BRUHAT ORDER OF PERMUTATION GROUP

Georgy Sharygin

*MSU, Moscow, Leninskie Gory 1, dept. of Mathematics and Mechanics, chair of  
Differential Geometry*

*ITEP, Moscow 117218, ul. B.Chermushkinskaja, 25*

[sharygin@itep.ru]

This talk is based on a joint work with Yu. Chernyakov (ITEP) and A. Sorin (JINR). As one knows, the singular points of the full symmetric Toda system in dimension  $n$  can be identified with the elements of the permutation group  $S_n$ . We show for small dimensions, that for any two singular points  $x$  and  $y$ , there is a trajectory from  $x$  to  $y$ , iff these two points verify the relation  $x < y$  in Bruhat order. In the case of a general  $n$  we have made several observations, which support this conjecture.