

1012-81-97

Evgeny Mukhin* (mukhin@math.iupui.edu), Department of Mathematics, 402 N. Blackford St, LD270, IUPUI, Indianapolis, IN 46202. *The spaces of quasi-polynomials and Bethe Ansatz.*

We study a reproduction procedure motivated by the Bethe Ansatz equation (BAE) related to the generalized Laplace operator associated to a Kac-Moody algebra. Such a procedure given a solution of the BAE produces (in a generic situation) a set of other solutions of the BAE. We call this set a population.

In the case of a simple Lie algebra there is a transitive and free action of the Weyl group on every population. We conjecture that this action coincides with the action of the Weyl group on the set of corresponding Bethe vectors.

In the case of $sl(N)$, the populations are in one-to-one correspondence with the set of spaces of quasi-polynomials of dimension N with given singular points and exponents. (Received September 12, 2005)