

ON THE GENERIC LAWRENCE REPRESENTATIONS OF THE BRAID GROUPS

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The Lawrence representations $L_n^m(q, t)$ ($m, n \in \mathbb{N}$) is a class of representations of the braid group B_n with two parameters. In this talk we add a condition on q, t : $q^i t^j \neq 1, \forall i, j \in \mathbb{Z}; q \neq 0$ and $t \neq 0$. Suppose $A_n[t]$ is the noncommutative polynomial ring generated by X_1, \dots, X_{n-1} , with the relations $X_i X_j = t X_j X_i$, for $i < j$; suppose $A_n^m[t]$ is the m -th component of $A_n[t]$ which consists of degree- m homogeneous polynomials. We construct a B_n action on $A_n^m[t]$ and show it is isomorphic to $L_n^m(q, t)$; we write down the representations using this isomorphism. In addition, we prove irreducibility of $L_n^m(q, t)$'s.

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