

TWIST OF KNOTS AND THE Q -POLYNOMIALS

CHAN-YOUNG PARK

(Joint work with Myeong-Ju Jeong and Younhee Choi)

For the Q -polynomial it is known that the n -th derivative $Q_K^{(n)}(a)$ of the Q -polynomial $Q_K(x)$ of a knot K at a is not a Vassiliev invariant if $a \neq 1, -2$.

The local transformation of two parallel strands with parallel orientation to the k -half twist of the two strands is called the t_k -move.

In this talk we show that, for any positive integer n , $Q_K^{(n)}(1)$ is not a Vassiliev invariant and $Q_K^{(n)}(-2)$ is not a Vassiliev invariant of degree $< 2n$, by using R. Trapp's result on twist sequences of knots. Also by using higher derivatives $Q_K^{(n)}(-2)$ of the Q -polynomial, we give some criterions to detect whether a knot K can be transformed to a knot K' by finitely many t_{2k} -moves, and if so, we give some results on the number of t_{2k} -moves necessary in the transformation.

This is a jointwork with Dr. Myeong-Ju Jeong and Ms. Younhee Choi.

KYUNGPOOK NATIONAL UNIVERSITY