

1033-57-200

**Hyeyoung Moon\*** (heymoon@gmail.com). *Polynomial invariants, knot distances and topoisomerase action*. Preliminary report.

The knot distance between two knots is defined as the minimum number of crossing changes that convert one knot to the other. Knot distances are related to the study of topoisomerase action. Type II topoisomerases are enzymes that break the backbone of DNA and allow passage of another segment of DNA through the break before resealing the break. In other words, these enzymes are involved in changing crossings of DNA knots. Using some mathematical theories, knot distances have been tabulated for rational knots, some non-rational knots and composite of rational knots up to 13 crossings. However, there are still undetermined distances in the knot distance table. Here I would like to apply some polynomial invariants to improve lower bounds of knot distances. In particular, I generalized proposition 3.1 in the paper, 'Polynomial values, the linking form and unknotting numbers' by A. Stoimenow. (Received September 10, 2007)