

ON THE POLYNOMIAL INVARIANTS AND ITS APPLICATIONS

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ABSTRACT. Im, Lee and I verified the checkerboard colorable flat virtual knots by the flat virtualization move. We consider two types of virtualization moves for virtual knots introduced by Dye. They are called the *sign virtualization* and the *way virtualization*. Based on the n -th polynomial for virtual knots, we define polynomials $W_G(t)$ and $S_G^2(t)$ via these two virtualization moves. And we show that they are invariants for virtual knots on the quotient ring $\mathbf{Z}[t^{\pm 1}]/I$ where I is an ideal generated by $t^2 - 1$.

And we introduce another method to define polynomial invariants by using embeddings. Recently, we defined embeddings from the set of long flat virtual knot diagrams to the set of long virtual knot diagrams so that we constructed invariants for long flat virtual knots via these embeddings and invariants for long virtual knots. Now we introduce the image of these embeddings in the set of long virtual knots and show some properties.

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