

REPRESENTATIONS OF THE VIRTUAL BRAID GROUPS TO THE ROOK ALGEBRAS

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Study of braid groups and their generalizations occupies an important place in the modern three-dimensional topology. This is a useful approach to construct knots and links invariants. It is known that the virtual braid group VB_n comparing to the classical braid group B_n has additional generators as well as additional relations (see, for example [1]).

In [2] it was constructed a representation of the group B_n in the group of invertible elements of the subalgebra $\mathbb{C}P_n$ of the rook algebra $\mathbb{C}R_n$.

We will demonstrate that to extend the braid group representation given in [2] to a virtual braid group representation one will need to extend the algebra $\mathbb{C}P_n$ in some sense. We will construct a representation of the group VB_n to rook algebra $\mathbb{C}R_n$ such that its restriction on B_n coincides with the representation given in [2].

REFERENCES

- [1] L. Kauffman "Virtual knot theory" *European Journal of Combinatorics* 20 (7)(1999)
- [2] S. Bigelow, E. Ramos, R. Yi, "The Alexander and Jones polynomials through representation of rook algebras" *Journal of Knot Theory and Its Ramifications* Vol. 21, No. 12 (2012) 1250114 (18 pages).

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