

## **ABSTRACT**

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Interactions between knot theory and homotopical algebra are numerous and natural. But the connections unveiled in this talk are rather unexpected. Following a recent preprint with Markus Szymik, I will explain how homotopy can help one to compute the full homology of racks and quandles. These are certain algebraic structures, useful in knot theory and other areas of mathematics. Their homology plays a key role in applications. Although very easy to define, it is extremely difficult to compute. Complete computations have been done only for a few families of racks. Our methods add a new family to this list, the family of permutation racks. The necessary background on racks and quandles, and their role in braid and knot theories, will be given.