

On the Burau representation of braids

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The Burau representation of braid groups goes back to the thirties, and can be defined by assigning to each generator an explicit matrix. Despite this very easy definition, it is still an open question whether or not the representation is faithful in the 4-strand case (faithfulness in the 3-strand case is an old result, and counterexamples for 5 strands were found by Bigelow in 1999). I'll try to explain why I find this question tantalizing, and advertise related (easier?) open problems.

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