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The Orlik-Terao algebra and the cohomology of configuration space

The cohomology of the configuration space of n points in \mathbb{R}^3 is isomorphic to the regular representation of the symmetric group, which acts by permuting the points. We give a proof of this fact by showing that the cohomology ring is canonically isomorphic to the associated graded of the cohomology of the configuration space of n points in \mathbb{R}^1 with the Varchenko-Gelfand filtration. Also, we give a recursive algorithm for computing the Orlik-Terao algebra of the Coxeter arrangement of type A_{n-1} as a graded representation of S_n , and we give a conjectural description of this representation in terms of the cohomology of the configuration space of n points in $SU(2)$ modulo translation.