A quiver presentation of Solomon's descent algebra
Marcus Bishop

The descent algebra of a finite Coxeter group admits a presentation as the path-algebra of a quiver subject to various relations. This talk will discuss how these relations can be generated for the descent algebra of type A_n.

Homology of Mathieu group M_{24}
Mathieu Dutour Sikirić

We will explain a method for computing $H_3(M_{24}) = \mathbb{Z}/12\mathbb{Z}$. The method is to use a simplicial polytope as an approximation of a classifying space. The fact that this is an approximation, i.e. that not all faces have trivial stabilizer is resolved by using the C.T.C. Wall lemma.

Some properties of non-abelian tensor product of groups
Mohammad Reza R. Moghaddam

In this paper we study some properties of non-abelian tensor product of two groups G and H. More precisely, if G is abelian and H a nilpotent group, then an upper bound for the exponent of $G \otimes H$ is obtained, with respect to the exponents of G and H. By using our results we obtain some upper bounds for the exponent of the Schur multiplier of non-abelian tensor product of groups.
Finally, an abelian group will be constructed by taking non-abelian tensor product of groups.

Computing the nonabelian tensor square of certain Bieberbach groups with dihedral point groups
Nor'ashiqin Mohd Idrus*, Robert Morse and Nor Haniza Sarmin

Let P be a point group and let $\mathbb{Z}^n$ be n copies of the infinite cyclic group. A Bieberbach group B is any torsion free extension of P by $\mathbb{Z}^n$.
In this paper we will discuss on how to compute the nonabelian tensor square of the centerless Bieberbach group B of dimension 4 with point group P isomorphic to D_8, the dihedral group of 8 elements. There is only one of such group and the group is polycyclic. The computation uses the methods developed by Blyth and Morse to compute the nonabelian tensor square of polycyclic groups.

Using GAP to compute the homological functors of infinite non-abelian 2-generator groups of class two of Type 2
Nor Haniza Sarmin*, Nor Muhainiah Mohd Ali and Luise-Charlotte Kappe

Let R be the class of infinite non-abelian 2-generator groups of nilpotency class 2 of type 2. Using their classification and non-abelian tensor squares given by N. H. Sarmin in 2002, we determine certain homological functors in R such as the exterior square, the symmetric square and the Schur multiplier. GAP is used to first compute the homological functors for some specific groups in R, and then the functors are generalized.

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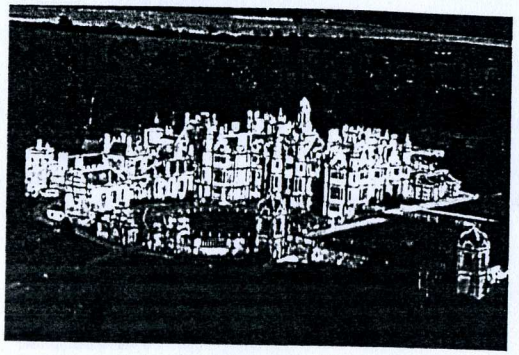

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