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Combinatorial Laplacian of the matching complex. (English) [Zbl 0985.05052](#)

[Electron. J. Comb. 9, No. 1, Research paper R17, 11 p. \(2002\)](#); printed version [J. Comb. 9, No. 1 \(2002\)](#).

Summary: A striking result of Bouc gives the decomposition of the representation of the symmetric group on the homology of the matching complex into irreducibles that are self-conjugate. We show how the combinatorial Laplacian can be used to give an elegant proof of this result. We also show that the spectrum of the Laplacian is integral.

MSC:

- [05E10](#) Combinatorial aspects of representation theory
- [05E25](#) Group actions on posets, etc. (MSC2000)
- [05E05](#) Symmetric functions and generalizations
- [20C30](#) Representations of finite symmetric groups
- [55U10](#) Simplicial sets and complexes in algebraic topology

Cited in **15** Documents

Keywords:

[representation of the symmetric group](#); [matching complex](#); [combinatorial Laplacian](#)

Full Text: [EuDML](#) [EMIS](#)