

INDECOMPOSABLE REPRESENTATIONS OF LEFT REGULAR BANDS

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Left regular bands are a family of semigroups that enjoy many surprising properties. They have received a lot of attention recently due to their link with some Markov chains (see [1]). In particular, a lot of informations about random walks on the chambers of an hyperplan arrangement can be computed using the representation theory of left regular bands.

In this talk, we will show how to compute the indecomposable projective representations of left regular bands. The first part will introduce the basic definitions and tools needed. The second part will present both a recursive construction (due to Saliola [2]) and a closed formula, used to compute complete sets of primitive orthogonal idempotents of left regular bands algebras. These sets, called eulerian families, correspond to the indecomposable projective representations of left regular bands over arbitrary fields. In the third part we will show, using a method introduced in [3], how these eulerian families can be used to study certain Markov chains.

REFERENCES

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- [2] Saliola, Franco V. The Quiver of the Semigroup Algebra of a Left Regular Band *Int. J. Algebra Comput.*, 17, 1593, 2007.
- [3] Saliola, Franco V. Eigenvectors for a random walk on left-regular bands *Adv. in Appl. Math.*, 48(2), 206-311, 2012.

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