

# Stability of the Hecke algebra of wreath products

Şafak Özden

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## Abstract

The non-abelian Hecke algebra  $\mathcal{H}_{n,k} = \mathbb{C}[(S_k \wr S_n) \backslash S_{kn} / (S_k \wr S_n)]$  can be endowed with a filtration using the orbit structures of the elements  $x \in S_{kn}$  relative to the action of  $S_{kn}$  on the set of  $k$ -partitions of  $\{1, \dots, kn\}$ . We prove that the structure constants of the associated filtered algebra  $\mathcal{F}_{n,k}$  is independent of  $n$ . This stability property leads to a universal algebra  $\mathcal{F}$  which governs the algebras  $\mathcal{F}_{n,k}$ . We also prove that the structure constants of the algebras  $\mathcal{H}_{n,k}$  is a polynomial in  $n$ .