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*Images of Iterated Polynomials over Finite Fields*

We discuss how to bound the size of the image of the  $n$ -th iterate of a polynomial over a finite field using results about arboreal Galois representations. The main term in this bound involves the fixed point proportion of the Galois group of the field extension of  $\mathbb{F}_q(t)$  obtained by adjoining all pre-images of the transcendental  $t$  under the  $n$ -th iterate of the polynomial. We give explicit bounds on the fixed point proportion of the group in the cases where this Galois group is an iterated wreath product.