Rigidity and height bounds for certain post-critically finite endomorphisms of $\mathbb{P}^N$
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Abstract. The morphism $f : \mathbb{P}^N \to \mathbb{P}^N$ is called post-critically finite (PCF) if the forward image of the critical locus, under iteration of $f$, has algebraic support. In the case $N = 1$, a result of Thurston implies that there are no algebraic families of PCF morphisms, other than a well-understood exceptional class known as the flexible Lattès maps. A related arithmetic result states that the set of PCF morphisms corresponds to a set of bounded height in the moduli space of univariate rational functions. We prove corresponding results for a certain subclass of the regular polynomial endomorphisms of $\mathbb{P}^N$, for any $N$. 