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Benjamin Hutz*, Saint Louis University, Saint Louis, MO , and **Michael Stoll**, Universitat Bayreuth, Bayreuth, Germany. *Smallest representatives of $SL(2, \mathbb{Z})$ -orbits of binary forms and endomorphisms of \mathbb{P}^1 .*

We develop an algorithm that determines, for a given squarefree binary form F with real coefficients, a smallest representative of its orbit under $SL(2, \mathbb{Z})$, either with respect to the Euclidean norm of the coefficient vector or with respect to the global height. This is based on earlier work of Cremona and Stoll. We then generalize our approach so that it also applies to the problem of finding a representative of smallest height in the $SL(2, \mathbb{Z})$ -orbit of an endomorphism of the projective line. Having a small model of such an endomorphism is useful for various computations. (Received February 13, 2018)