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Degree growth of birational maps of the plane

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Abstract. This article studies the sequence of iterative degrees of a birational map of the plane. This sequence is known either to be bounded or to have a linear, quadratic or exponential growth.

The classification elements of infinite order with a bounded sequence of degrees is achieved, the case of elements of finite order being already known. The coefficients of the linear and quadratic growth are then described, and related to geometrical properties of the map. The dynamical number of base-points is also studied.

Applications of our results are the description of embeddings of the Baumslag-Solitar groups and $\mathrm{GL}(2,\mathbb{Q})$ into the Cremona group.

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