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Divisorial extremal contractions of threefolds: Divisor to point. (English) Zbl 0919.14021

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Summary: Extremal contractions which contract divisors to points in projective threefolds with \mathbb{Q} -factorial terminal singularities are studied and divided into two categories: index increasing contractions and index strictly decreasing contractions. A complete classification of those in the first category is given. Examples of contractions in the second category are constructed to demonstrate that they are much more difficult to deal with. An extremal contraction which contracts a divisor to a curve is always index decreasing. An example of such a contraction to a curve with a non-Gorenstein terminal singularity is given based on a method of Kollár and Mori. The classification result is then used to find a bound N depending on the Picard number of a smooth projective threefold X of general type such that the linear system $|NK_X|$ defines a birational map.

MSC:

14J30 3-folds

14E30 Minimal model program (Mori theory, extremal rays)

Cited in **1** Review
Cited in **4** Documents

Keywords:

extremal contraction; not numerically effective canonical divisor; factorial terminal singularities; threefolds; index

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