

Bounce conditions in $f(R)$ cosmologies

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Published 28 February 2006 • 2006 IOP Publishing Ltd

[Classical and Quantum Gravity](#), [Volume 23](#), [Number 6](#)

+ Article information

Abstract

We investigate the conditions for a bounce to occur in Friedmann–Robertson–Walker cosmologies for the class of fourth-order gravity theories. The general bounce criterion is determined and constraints on the parameters of three specific models are given in order to obtain bounce solutions. Furthermore, unlike the case of general relativity, a bounce appears to be possible in open and flat cosmologies.