



Studies in String Cosmology

By Amanda Weltman

VDM Verlag Dez 2008, 2008. Taschenbuch. Book Condition: Neu. 220x150x17 mm. Neuware - In this book we study the problem of moduli stabilisation in a cosmological context of string theory. Motivated by the moduli stabilisation problem, we introduce for the first time chameleon fields, so named because their masses and values depend sensitively on the local matter density. We show that such fields can evade all local tests of the equivalence principle and we make predictions for near-future tests of gravity in space while driving the current phase of cosmic accelerated expansion. We then study string corrections to racetrack inflation, a proposal for inflationary dynamics in the context of flux compactifications. Finally, we study a truncated low energy effective action that models the neighbourhood of special points in moduli space, such as conifold points, where extra massless degrees of freedom arise. We study moduli dynamics and stabilisation in this context in a cosmological background and find surprising variety in field dynamics including the appearance of chaos. The chaos aids in our understanding of the behaviour of moduli near these special points. In particular we find a viable mechanism for trapping some of the moduli near these points. 276 pp. Deutsch.



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