

1. Record Nr.	UNINA9910337876303321
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Titolo	Cosmology and String Theory // by Horaiu Nstase
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-15077-1
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (459 pages)
Collana	Fundamental Theories of Physics, , 0168-1222 ; ; 197
Disciplina	523.1 539.7258
Soggetti	Quantum field theory String models Cosmology Gravitation Quantum Field Theories, String Theory Classical and Quantum Gravitation, Relativity Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	The expanding Universe and the Big Bang -- Relativistic theory -- The propagation of light and measurements of distance, luminosity, and mass -- Evidence for Dark Matter and the $\Lambda$ CDM model -- The Early Universe and its thermal history -- Big Bang Nucleosynthesis and Recombination -- The Cosmic Microwave Background Radiation (CMBR) anisotropy -- Problems to be solved by inflation and how they are solved in inflationary models -- Slow-roll inflation -- Reheating and baryogenesis -- Fluctuations in inflation and matching with experimental data -- Extra dimensions and Kaluza-Klein -- Electromagnetism and gravity in various dimensions. Consistent truncation -- $N = 1$ supergravity in 4 dimensions -- KK compactification of supergravity models -- The relativistic point particle -- Relativistic strings -- Light-cone gauge strings and quantization -- D-branes and gauge fields -- Electromagnetic fields on D-branes and $N = 4$ SYM. T-duality of closed strings -- T-duality of open strings. M-theory and the duality web -- String theory and particle physics -- Holography and the AdS/CFT correspondence --

Problems of string inflation -- Problems of the supergravity approximation to string inflation -- Brane- (antibrane) inflation -- Braneworld cosmology and the Israel junction conditions -- The KKLT scenario for de Sitter backgrounds in string theory -- The KKLMNT scenario for inflation and generalizations -- The ekpyrotic scenario -- The cyclic and new ekpyrotic scenarios -- String gas cosmology: basics and Brandenberger-Vafa scenario -- String gas and brane gas developments -- Chameleon scalars and string theory -- Axion inflation and axion monodromy from string theory -- Fuzzy dark matter from string theory -- Holographic cosmology.

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Sommario/riassunto

Cosmology describes the evolution of the Universe and is based on a description of its beginning from quantum fluctuations. String theory is the only known consistent theory of quantum gravity that can deal with the highest energy scales near the Planck energy, relevant for cosmology's beginning. As a result, only string theory can give a fully consistent picture of cosmological origins. This book describes the best current avenues for obtaining cosmology from string theory. It is aimed at graduate students, and also researchers, with some familiarity with cosmology and string theory, however no detailed knowledge is required. .

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