



Introduction to Particle Cosmology: The Standard Model of Cosmology and its Open Problems (UNITEXT for Physics)

By Cosimo Bambi, Alexandre D. Dolgov

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This book introduces the basic concepts of particle cosmology and covers all the main aspects of the Big Bang Model (expansion of the Universe, Big Bang Nucleosynthesis, Cosmic Microwave Background, large scale structures) and the search for new physics (inflation, baryogenesis, dark matter, dark energy). It also includes the majority of recent discoveries, such as the precise determination of cosmological parameters using experiments like WMAP and Planck, the discovery of the Higgs boson at LHC, the non-discovery to date of supersymmetric particles, and the search for the imprint of gravitational waves on the CMB polarization by Planck and BICEP.

This textbook is based on the authors' courses on Cosmology, and aims at introducing Particle Cosmology to senior undergraduate and graduate students. It has been especially written to be accessible even for those students who do not have a strong background in General Relativity and quantum field theory. The content of this book is organized in an easy-to-use style and students will find it a helpful research guide.

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Editorial Review

Review

“This book describes the so-called Standard Cosmological Model. … The present book is intended for senior undergraduate and graduate physics students interested in cosmology. It is not necessary that they possess a strong background in theoretical high energy physics.” (Claudia-Veronika Meister, zbMATH 1334.85001, 2016)

From the Back Cover

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About the Author

Cosimo Bambi is Professor at the Department of Physics of Fudan University. He received the PhD from Ferrara University (Italy) in 2007. He was a postdoc at Wayne State University (Michigan), at IPMU at The University of Tokyo (Japan), in the group of Prof. Dvali at LMU Munich (Germany). He moved to Fudan University at the end of 2012 under the Thousand Young Talents Program. His research interests cover several areas in gravity, cosmology, and high energy astrophysics. He has published over 80 research papers in refereed journals and 2 review papers.

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