

}essentials{

Jan Louis

With String Theory to the Big Bang

A Journey to the Origin
of the Universe

 Springer

essentials

Springer essentials

Springer essentials provide up-to-date knowledge in a concentrated form. They aim to deliver the essence of what counts as “state-of-the-art” in the current academic discussion or in practice. With their quick, uncomplicated and comprehensible information, essentials provide:

- an introduction to a current issue within your field of expertise
- an introduction to a new topic of interest
- an insight, in order to be able to join in the discussion on a particular topic

Available in electronic and printed format, the books present expert knowledge from Springer specialist authors in a compact form. They are particularly suitable for use as eBooks on tablet PCs, eBook readers and smartphones. *Springer essentials* form modules of knowledge from the areas economics, social sciences and humanities, technology and natural sciences, as well as from medicine, psychology and health professions, written by renowned Springer-authors across many disciplines.

More information about this subseries at <http://www.springer.com/subseries/16761>

Jan Louis

With String Theory to the Big Bang

A Journey to the Origin
of the Universe



Springer

Jan Louis
Fachbereich Physik
Universität Hamburg
Hamburg, Germany

ISSN 2197-6708

essentials

ISSN 2731-3107

Springer essentials

ISBN 978-3-658-35849-5

<https://doi.org/10.1007/978-3-658-35850-1>

ISSN 2197-6716 (electronic)

ISSN 2731-3115

ISBN 978-3-658-35850-1 (eBook)

This book is a translation of the original German edition „Mit der Stringtheorie zum Urknall“ by Louis, Jan, published by Springer Fachmedien Wiesbaden GmbH in 2021. The translation was done with the help of artificial intelligence (machine translation by the service DeepL.com). A subsequent human revision was done primarily in terms of content, so that the book will read stylistically differently from a conventional translation. Springer Nature works continuously to further the development of tools for the production of books and on the related technologies to support the authors.

© Springer Fachmedien Wiesbaden GmbH, part of Springer Nature 2021

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Responsible Editor: Margit Maly

This Springer imprint is published by the registered company Springer Fachmedien Wiesbaden GmbH part of Springer Nature.

The registered company address is: Abraham-Lincoln-Str. 46, 65189 Wiesbaden, Germany

What You Can Find in This *essential*

- An introduction and overview of the state of the art in cosmology, particle physics and string theory.
- A short version of the history of our universe—from established facts to a selection of speculations.