

Reports from the Astronomy

Horst Fritsch

The Big Bang - a Mirage

For the 100th Birthday of the General Theory of Relativity

Shaker Verlag
Aachen 2016

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <http://dnb.d-nb.de>.

Title of the original edition:

Horst Fritsch

Der Urknall - eine Fata Morgana

Zum 100. Geburtsjahr der Allgemeinen Relativitätstheorie

© Shaker Verlag, 2015

Copyright Shaker Verlag 2016

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publishers.

Printed in Germany.

ISBN 978-3-8440-4335-8

ISSN 0947-7756

Shaker Verlag GmbH • P.O. BOX 101818 • D-52018 Aachen

Phone: 0049/2407/9596-0 • Telefax: 0049/2407/9596-9

Internet: www.shaker.de • e-mail: info@shaker.de

Content

1	Brief introduction to the subject	3
2	The current standard model of cosmology	4
2.1	Problems of the Λ CDM model	6
3	The "Cosmic Time Hypothesis" (CTH) - an alternative to the Big Bang model	8
3.1	The Einstein-de Sitter universe reinterpreted	8
3.2	Time and signal velocity	17
3.3	Space and time	18
3.4	Cosmic energy balance	21
3.5	The unity of space, time, and matter.....	23
4	Consequences of the CTH	24
4.1	Solution of old Big Bang theory problems.....	25
4.2	Is there "dark matter"?	28
4.3	Dark energy and the mystery of the cosmological constant	28
4.4	Expansion of local structures	33
4.5	The theory of Earth's expansion	35
4.6	The "Large Numbers Hypothesis" by Paul Dirac	38
4.7	Unification of the forces of nature	40
4.8	Considerations regarding the first and second Mach principle	43

5	Summary	47
6	Mathematical appendix	50
6.1	Cosmological models with constant deceleration parameter q	50
6.2	Expanding gas volume in the vacuum	51
6.3	The theory of gravitational instability	52
6.4	Calculating the vacuum energy density according to the CTH....	53
6.5	Rate of advance of clocks according to the CTH	55
6.6	Kinetic and potential energy of planets	56
7	Formula symbol.....	58
8	Bibliography	59