D-Branes

D-branes represent a key theoretical tool in the understanding of strongly coupled superstring theory and M-theory. They have led to many striking discoveries, including the precise microphysics underlying the thermodynamic behaviour of certain black holes, and remarkable holographic dualities between large-N gauge theories and gravity.

This book provides a self-contained introduction to the technology of D-branes, presenting the recent developments and ideas in a pedagogical manner. It is suitable for use as a textbook in graduate courses on modern string theory and theoretical particle physics, and will also be an indispensable reference for seasoned practitioners. The introductory material is developed by first starting with the main features of string theory needed to get rapidly to grips with D-branes, uncovering further aspects while actually working with D-branes. Many advanced applications are covered, with discussions of open problems which could form the basis for new avenues of research.

This title, first published in has been reissued as 2003, an Open Access publication on Cambridge Core.

CLIFFORD V. JOHNSON obtained his BSc in physics at Imperial College, University of London, and his PhD in theoretical physics from the University of Southampton. He won a 1992 Lindeman Fellowship and a 1992 SERC NATO Fellowship, and became a member of the School of Natural Sciences at the Institute for Advanced Study, Princeton. He then spent a year teaching and doing research at the Physics Department of Princeton University, and went on to hold a postdoctoral position at the Institute for Theoretical Physics, University of California, Santa Barbara. From 1997 to 1999 he was Assistant Professor at the University of Kentucky. Dr Johnson is currently Reader in Theoretical Physics, Department of Mathematical Sciences, University of Durham, where he is a member of the Centre for Particle Theory.

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CAMBRIDGE
UNIVERSITY PRESS

Shaftesbury Road, Cambridge CB2 8EA, United Kingdom

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477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India

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Cambridge University Press is part of Cambridge University Press & Assessment,
a department of the University of Cambridge.

We share the University's mission to contribute to society through the pursuit of
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www.cambridge.org
Information on this title: www.cambridge.org/9781009401364

DOI: 10.1017/9781009401371

When citing this work, please include a reference to the DOI 10.1017/9781009401371

First published 2003
Reissued as OA 2023

A catalogue record for this publication is available from the British Library.

ISBN 978-1-009-40136-4 Hardback
ISBN 978-1-009-40139-5 Paperback