

GAUGE/STRING DUALITY, HOT QCD AND HEAVY ION COLLISIONS

Heavy ion collision experiments recreating the quark–gluon plasma that filled the microseconds-old Universe have established that it is a nearly perfect liquid that flows with such minimal dissipation that it cannot be seen as made of particles. String theory provides a powerful toolbox for studying matter with such properties.

This book provides a comprehensive introduction to gauge/string duality and its applications to the study of the thermal and transport properties of quark–gluon plasma, the dynamics of how it forms, the hydrodynamics of how it flows, and its response to probes including jets and quarkonium mesons.

Calculations are discussed in the context of data from RHIC and LHC and results from finite temperature lattice QCD. The book is an ideal reference for students and researchers in string theory, quantum field theory, quantum many-body physics, heavy ion physics and lattice QCD. This title, first published in 2014, has been reissued as an Open Access publication on Cambridge Core.

JORGE CASALDERREY-SOLANA is a Ramón y Cajal Researcher at the Universitat de Barcelona. His research focuses on the properties of QCD matter produced in ultra-relativistic heavy ion collisions.

HONG LIU is a Professor of Physics at MIT. His research interests include quantum gravity and exotic quantum matter.

DAVID MATEOS is an ICREA Research Professor at the Universitat de Barcelona, where he leads a group working on the connection between string theory and quantum chromodynamics.

KRISHNA RAJAGOPAL is a Professor of Physics at MIT. His research focuses on QCD at high temperature or density, where new understanding can come from unexpected directions.

URS ACHIM WIEDEMANN is a Senior Theoretical Physicist at CERN, researching the theory and phenomenology of ultra-relativistic heavy ion collisions.

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JORGE CASALDERREY-SOLANA

Universitat de Barcelona

HONG LIU

Massachusetts Institute of Technology

DAVID MATEOS

ICREA & Universitat de Barcelona

KRISHNA RAJAGOPAL

Massachusetts Institute of Technology

URS ACHIM WIEDEMANN

CERN



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Shaftesbury Road, Cambridge CB2 8EA, United Kingdom
One Liberty Plaza, 20th Floor, New York, NY 10006, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India
103 Penang Road, #05-06/07, Visioncrest Commercial, Singapore 238467

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