

Special Issue

Quantum Entanglement and Holographic Universe

Message from the Guest Editor

Quantum entanglement plays an essential role in the modern understanding of gravity. The Ryu–Takayanagi formula reveals a deep relation between spacetime geometry and quantum entanglement. Remarkably, the Einstein equations in bulk can be obtained from the first law of entanglement entropy of conformal field theories on the boundary. Furthermore, studying quantum entanglement in holographic gravity leads to a significant breakthrough toward resolving the black hole information paradox, for which many novel physical concepts, such as the quantum extremal surface and island, are developed. What new information can quantum entanglement tell us about the universe? Could it shed light on the black hole singularity or the universe's accelerating expansion? Many important questions remain to be explored. This Special Issue invites articles on a wide range of topics on quantum entanglement, the AdS/CFT correspondence, and the holographic universe.

- quantum entanglement
- general relativity
- gauge/gravity duality
- holographic universe
- black holes
- Hawking radiation
- Page curve

Guest Editor

Dr. Rong-Xin Miao

School of Physics and Astronomy, Sun Yat-Sen University, Zhuhai 519082, China

Deadline for manuscript submissions

closed (15 December 2023)



Universe

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Impact Factor 2.6
CiteScore 5.2



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Universe
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
universe@mdpi.com

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About the Journal

Message from the Editor-in-Chief

The multidisciplinary journal *Universe* is aiming to follow and, hopefully, to lead to the largest extent as possible the ever-self renovating threads which weave mathematical theories with our understanding of the magnificent natural world. On behalf of all the distinguished members of the Advisory and Editorial Boards, I extend my welcome to this journal and look forward to hearing from the interested contributors and learning about their valuable research.

Editor-in-Chief

Prof. Dr. Lorenzo Iorio
Ministero dell' Istruzione e del Merito, Viale Unità di Italia 68, 70125 Bari,
Italy

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