



新潟大学量子研究センター

NU-Q レクチャー

From the **Black Hole Conundrum** to the Structure of **Quantum Gravity**

日時 : 2023年 7月13日 (木)
14:30 - 18:00 (2部構成)

場所 : 理学部B棟 B201講義室

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概要 :

We portray the structure of quantum gravity emerging from recent progress in understanding the quantum mechanics of an evaporating black hole. Quantum gravity admits two different descriptions, based on Euclidean gravitational path integral and a unitarily evolving holographic quantum system, which appear to present vastly different pictures under the existence of a black hole. Nevertheless, these two descriptions are physically equivalent. Various issues of black hole physics—including the existence of the interior, unitarity of the evolution, the puzzle of too large interior volume, and the ensemble nature seen in certain calculations—are addressed very differently in the two descriptions, still leading to the same physical conclusions. The perspective of quantum gravity developed here is expected to have broader implications beyond black hole physics, especially for the cosmology of the eternally inflating multiverse

主催 : 新潟大学量子研究センター (NU-Q)

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