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COLLOQUIUM DFA

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AULA ROSTAGNI
YOUTUBE STREAMING

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The black hole information paradox

Abstract: Fifty years ago, Stephen Hawking showed that black holes emit radiation due to quantum effects. The discovery of Hawking radiation has led to a longstanding puzzle about the nature of black holes. This is the information paradox, the question of what happens to information that falls into a black hole. In this colloquium we will explain the information paradox, and discuss why it is so important for understanding the quantum nature of gravity. We will explore contemporary ideas for resolving the paradox, and how these may relate to quantum computing.

Marika Taylor is currently Professor of Mathematics and Physics at the University of Birmingham; she is also Vice President and Head of Engineering and Physical Sciences at the university. She studied for her PhD with Stephen Hawking at Cambridge University, and after postdoctoral work in Cambridge and Utrecht she became a tenured faculty member at the University of Amsterdam. In 2012 she moved back to the UK, to found and develop a research center in theory, astronomy and gravity at the University of Southampton, before moving to a leadership role at the University of Birmingham in 2025. Her research interests span string theory, quantum field theory, gravity as well as physics inspired AI and geometric learning.

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