

New Horizons Solvay Lectures in Physics



Prof. Netta Engelhardt (MIT, USA)

Netta Engelhardt grew up in Jerusalem, Israel and Boston, MA. She received her BSc in physics and mathematics from Brandeis University and her PhD in physics from the University of California, Santa Barbara. She was a postdoctoral fellow at Princeton University and a member of the Princeton Gravity Initiative prior to joining the physics faculty at MIT in July 2019. Professor Engelhardt works on quantum gravity, primarily within the framework of the AdS/CFT correspondence. Her research focuses on understanding the dynamics of black holes in quantum gravity, leveraging insights from the interplay between gravity and quantum information via holography. Her current primary interests revolve around the black hole information paradox, the thermodynamic behavior of black holes, and the cosmic censorship hypothesis (which conjectures that singularities are always hidden behind event horizons).

The Black Hole Information Paradox: a resolution on the horizon?

Abstract: Can information escape from a black hole? General Relativity, which describes the behavior of black holes, and quantum mechanics, which describes the behavior of information, do not agree on the answer. This disagreement is the essence of the famous nearly 50 year old Black Hole Information Paradox. Understanding the resolution of this problem is a central pillar in the quest for quantum gravity, a theory that describes the universe at the smallest scales by unifying General Relativity and quantum mechanics. Recently there has been an unprecedented amount of progress towards a resolution. I will describe the origin of the paradox and the current status in light of the new developments.

Tuesday 11 June 2024 at 4.00 pm.

COFFEE AND TEA WILL BE SERVED AT 3:45 P.M IN FRONT OF THE SOLVAY ROOM

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