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### **Black Holes and Firewalls**

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Our modern understanding of space, time, matter, and even reality itself arose from the three great revolutions of the early twentieth century: special relativity, general relativity, and quantum mechanics. But a century later, this work is unfinished. Many deep connections have been discovered, but the full form of a unified theory incorporating all three principles is not known. Thought experiments and paradoxes have often played a key role in figuring out how to fit theories together. For the unification of general relativity and quantum mechanics, black holes have been an important arena. I will talk about the quantum mechanics of black holes, the information paradox, and the latest version of this paradox, the firewall. The firewall points to a conflict between our current theories of spacetime and of quantum mechanics. It may lead to a new understanding of how these are connected, perhaps based on quantum entanglement.