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String Theory in Greater Paris

Rencontres Théoriciennes "Supergravité, théorie des cordes et théorie M"

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The information paradox: It just won't go away

It has been forty years since Hawking discovered that black holes violate the laws of quantum mechanics. This result was to be dubbed the Information Paradox. For various reasons the paradox received minimal interest and virtually lay dormant for the last twenty years. However, a lot of activity has been seen on the paradox in the last two years.

I will review the information paradox, the reasons it lay dormant and the reasons for newfound interest under the "firewall" banner. I will review the decade old fuzzball proposal that may be considered a top down approach to firewalls. I will then discuss various ideas that have been proposed to do away with firewalls/fuzzballs and the problems associated with them. Finally, I will make discuss the implications for holography.

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