

Service de Physique Nucléaire



Séminaire

le vendredi 6 mars 2015 à 11h00

CEA Saclay, Orme des Merisiers, Bât. 703, Salle 135

Black Hole Microstate Solutions, Fuzzballs, Firewalls and the Information Paradox

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Black holes are very interesting objects, whose physics brings Quantum Mechanics and General Relativity into sharp contrast. For example, Quantum Mechanics predicts that the black hole at the center of the Milky Way has an entropy of order 10^{90} , and hence has $e^{10^{90}}$ microstates, while General Relativity predicts that this black hole only has one microstate. I will explain the origin of this enormous discrepancy, which lies at the basis of Hawking's information paradox, and describe several steps towards its resolution. In particular, I will argue that the microstates that give the entropy of this black hole are given by solutions without a horizon, and that the black hole horizon is an approximate concept that emerges from the quantum superposition of these horizonless solutions.

Le café sera servi 10 minutes avant

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