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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 22 Octobre 2015, 11:45

Monica Guica

On the construction of charged operators inside an eternal black hole

We consider the construction of (approximately) local charged bulk operators inside an eternal black hole in terms of CFT operators on the two asymptotic boundaries. This construction must involve a qualitatively new object : a Wilson line that stretches between the two boundaries of the eternal black hole, which cannot be expressed in terms of the boundary currents. The zero mode of this Wilson line is associated to the appearance of a new gauge-invariant mode of the bulk gauge field that only exists in two-sided geometries. We discuss how the Wilson line operator acts on the relevant subspaces of the CFT Hilbert space. Furthermore, we show that it may be extracted from a limit of certain standard CFT operator expressions.

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