

Z. Haba "Quantum fields near the horizon and at the singularity"

Abstract

We approximate a Euclidean version of a $D+1$ dimensional manifold with a bifurcate Killing horizon by a product of a two dimensional Rindler space and a $D-1$ dimensional Riemannian manifold \mathcal{M} . We study the behaviour of Green functions near the horizon and their dimensional reduction. We show that if the manifold \mathcal{M} is compact then the field theory on a manifold with a horizon can be approximated by a two dimensional Euclidean field theory. A general mechanism responsible for this dimensional reduction is discussed. Functional integration in the Euclidean framework is described with an application to quantum field theory on a curved background.