

The strong CP problem, general covariance, and horizons

We discuss the strong CP problem in the context of quantum field theory in the presence of horizons. We argue that general covariance places constraints on the topological structure of the theory. In particular, as in QCD, it means that different topological sectors of the theory can only sum incoherently, because the degrees of freedom beyond the horizon must be traced over for general covariance to apply. This might lead to a solution of the so-called strong CP problem without extra observable dynamics.

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