



Contribution ID : 312

Type : **Poster**

Can we create time-machine ?

Tuesday, 29 November 2022 17:10 (120)

One of the features of general relativity is the possible existence of space-time with a nontrivial topological and casual global structure . The real three-dimensional space might in principle be multiply connected and there might exist wormholes in it. It was shown that a stable wormhole (if only exist) can be transformed into a time machine. If we take into account quantum field fluctuations in given space with wormhole , we find amplification of fluctuations in approaching to Cauchy horizon. Renormalized stress-energy tensor of a quantum field diverge at the Cauchy horizon. In particular quantum field energy become infinite. Usually this fact is interpreted as impossibility to create time machine (chronology protection). This result was obtained in classical consideration of given wormhole's throats motion and quantum field effects in given geometry. In present paper we use quantum mechanics for calculation of wormhole's throats motion . This approach gives the possibility of time-machine creation of the order of 1. This process is very similar to Quantum tunnelling in standard quantum mechanic.

Primary author(s) : Mr. KURYAN, Victor

Presenter(s) : Mr. KURYAN, Victor

Session Classification : Poster Session

Track Classification : Gravitation and cosmology