

# **Influence of a gravitationally induced phase on neutrino oscillation and Baryogenesis**

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In view of the fact that there is still no uncontroversial idea of quantum gravity nor an experimental evidence for its existence it is well motivated to look for the latter in neutrino oscillations.

For this a general transition probability is derived for a neutrino interacting gravitationally with background neutrinos. This induces a phase modifying the oscillation behavior which may be experimentally detectable. Therefore this could be a direct evidence for the quantum

character of gravity.

Since there are theories that explain baryon asymmetry via neutrino oscillations the effect of the phase shift may also have an impact on the predictions of these models.

Extra dimensions are introduced to consider even larger effects.

## **Title**

Influence of a gravitationally induced phase on neutrino oscillation and Baryogenesis

**Primary author:** KRIEG, Sara

**Presenter:** KRIEG, Sara

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