

ICEHAP Seminar

2015年6月9日(火)午後2:00~

会場: 理学部2号館308物理会議室

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"Tests of Lorentz and CPT violation with neutrinos"

要旨 / abstract

Lorentz violation has been shown to occur in Planck scale physics.

Since neutrino oscillation experiments are natural interferometers, they may be sensitive to small space-time effect, such as Lorentz violation.

The sensitivity is comparable to precision optical measurements ($10E-19$ GeV).

Thus, neutrino oscillations may be the first place where we see Lorentz and CPT violation.

Recently the MiniBooNE neutrino oscillation experiment published electron and anti-electron neutrino appearance oscillation results that cannot be understood within the accepted three-massive-neutrinos oscillation model.

In this talk, I will introduce Lorentz violation and Lorentz violating neutrino oscillations.

And I examine whether the MiniBooNE data may be explained through a Lorentz violation model.

Then, I will discuss the recent Lorentz violation analysis results on Double Chooz reactor oscillation experiment.

Finally, I will show a future prospective of the best Lorentz violation test on the neutrino sector through the astrophysical ultra high-energy neutrinos at IceCube.