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Search for Non-Standard Interactions by atmospheric neutrino

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It is known that neutral current Non-Standard Interactions (NSI) in propagation cause additional matter effect for neutrinos and that large NSI, which is comparable in strength to those in the Standard Model, can be consistent with the existing data. We investigate the effects of NSI in propagation to atmospheric neutrino experiments such as Super-Kamiokande and Hyper-Kamiokande. With the ansatz where the parameters which have strong constraints from other experiments are neglected, we show how these experiments put constraints on the remaining parameters of the Non-Standard Interactions.

Author: M. FUKASAWA, Shinya (Tokyo Metropolitan University)

Co-auteur: Prof. YASUDA, Osamu (Tokyo Metropolitan University)

Orateur: M. FUKASAWA, Shinya (Tokyo Metropolitan University)

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