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Large extra dimension at JUNO

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We use the JUNO experiment which is a reactor neutrino experiment to constrain the parameters of the Large Extra Dimension (LED) model. The parameters of this model are the radius of extra dimension R_{LED} and the lightest neutrino mass m_0 . We select the JUNO experiment because its aim is to determine the hierarchy of the neutrino masses and for this it will simultaneously measure the oscillations due to the parameters Δm_{21}^2 and $|\Delta m_{32}^2|$ and also the mixing angles θ_{12} and θ_{13} using a resolution on the visible energy of the positrons of 1% at 1 MeV. The LED model used in this work considers that neutrinos are Dirac neutrinos, the space-time structure of our universe is 4 + 1 that is: four flat spatial dimensions where the extra spatial dimension is compactified in a circle of radius R_{LED} and the 1 indicates a time dimension. We expect the results obtained in the parameters R_{LED} and m_0 from this analysis will be slightly more restrictive than previous work already done due to the energy resolution of the JUNO experiment.

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