

The XXIX International Conference on Supersymmetry and Unification of Fundamental Interactions (SUSY 2022)



Contribution ID: 64

Type: **not specified**

Searching for Proton Decay in JUNO

Monday 27 June 2022 17:20 (20 minutes)

Proton Decay is a main consequence of Baryon Number Violation and is predicted in several Grand Unified Theories (GUTs). It is one of the conditions to explain the asymmetry of matter and anti-matter in our universe. One of the main proton decay channels favored by supersymmetric GUTs is p to K^+ and $\bar{\nu}$. By now, Super-Kamiokande has set a lower lifetime limit of 5.9×10^{33} years for this channel. The Jiangmen Underground Neutrino Observatory (JUNO) is a 20 kton liquid scintillator detector currently under construction in China and is expected to reach the order of 10^{34} years after ten years of data taking.

In this talk, I present a general strategy of JUNO for the search of the proton decay and main background reactions due to atmospheric neutrinos will be discussed. One open issue is the still unknown quenching behavior of the K^+ in the scintillator of JUNO, which we aim to solve in dedicated experiments at accelerators.

Primary author: FAHRENDHOLZ, Ulrike

Presenter: FAHRENDHOLZ, Ulrike

Session Classification: Flavour physics: Theory and Experiment