Contribution ID: **216** Type: **Poster**

Searches for purely leptonic 3-body proton decay channels p -> enunu and p -> mununu as well as p->eX and p->muX at the Super-Kamiokande experiment.

A unique test of GUT scale physics unreachable by accelerators, nucleon decay is a vital component of BSM searches. Given exclusion of the minimal SU(5) unification by current proton lifetime limits, it is of high significance to test other unification scenarios. Results from first 3 body decay search at SuperK of p -> enunu and p -> mununu will be presented. Such tri-lepton modes could arise from a Pati-Salam partial unification model, potentially originating from an SO(10) breaking chain, with limits demonstrated here providing strong constraints to some scenarios. A novel technique to approximate charge lepton spectra from these decays will be shown. Additionally, we will also demonstrate first results of SuperK on decay modes of p -> eX and p ->muX, X being an invisible particle,
with significantly improved bounds compared to those of previous searches.

Primary author: TAKHISTOV, Volodymyr (University of California, Irvine)

Presenter: TAKHISTOV, Volodymyr (University of California, Irvine)

Track Classification: Other / Global Projects