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Non-perturbative renormalization of proton decay matrix elements

We present lattice calculation results for the proton decay matrix elements along with preliminary result of non-perturbative renormalization. The computation is done by using 2+1 flavor dynamic domain wall fermions at the physical point on the $24^3 \times 64$ lattice with lattice spacing $a^{-1} = 1\text{GeV}$. The matrix element computations was done with 121 gauge configurations and non-perturbative renormalization was done with 30 gauge configurations. All of the computation employed 32+1 All-Modes-Averaging(AMA) method.

Authors: YOO, Jun-Sik; SYRITSYN, Sergey (Stony Brook University)

Presenter: YOO, Jun-Sik

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