Particle Physics on the Plains 2022 Part 2



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New Physics in Meson Decays at Beam Dump and Stopped Pion Facilities

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We explain the MiniBooNE low energy excess utilizing three body decays of charged mesons into a lepton, neutrino, and a dark bosonic state, in conjunction with Primakoff-like photoconversion of such states in order to explain the angular spectrum. Thus, dark-sector interpretations can be reinstated as plausible solutions to the excess. We explore a new space of EFTs that fit into this general phenomenological framework and show how complimentary searches can be performed at stopped-pion experiments. We present some preliminary studies on the capabilities of the CCM experiment in this light.

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