

# Phenomenology 2018 Symposium



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## Leptophilic $Z'$ 's in neutrino scattering

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Near detectors (ND) at neutrino oscillation experiments will be subjected to unprecedented neutrino fluxes. We explore this to encourage the search for leptophilic new physics in rare neutrino scattering processes like neutrino-electron scattering and *neutrino trident production*. After addressing some inconsistencies with previous rates for neutrino trident production in the SM, we present revised rates and show that backgrounds can be kept under control. We then discuss the impact of leptophilic  $Z'$  models on trident-like processes and show the sensitivities of future near detectors to these enhanced processes.

### Summary

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