

## Kento Asai "New Constraint on Dark Photon at T2K Off-Axis Near Detector"

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The T2K experiment is one of the most powerful long-baseline experiments to investigate neutrino oscillations. The off-axis near detector called ND280 is installed 280m downstream from the neutrino production target to measure the neutrino energy spectrum. In this paper, we study the capability of the ND280 detector to search for the dark photon produced through the meson rare decay and proton bremsstrahlung processes at the proton beam dump. We find that the ten-year operation of T2K with the ND280 detector excludes the unexplored parameter region for the dark photon mass and kinetic mixing. We also show that a broader parameter region can be searched by the ND280 in the future T2K operation for dark photon as well as  $U(1)_{B-L}$  gauge boson.

**Session Classification:** Short talks