$|U_{eN}| = |U_{\tau N}| = 0$

$|U_{\mu N}|^2$

10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
10^{-8}
10^{-9}

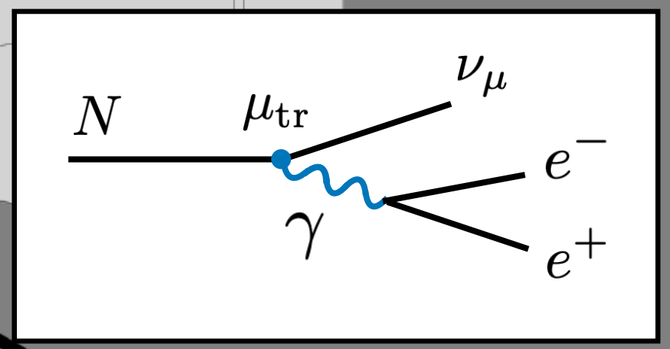
T2K (this work)
T2K full (this work)
PS191 (this work)
MicroBooNE (Kelly-Machado)
BBN

K^+
N
μ^+
N
ν_μ
Z
e^-
e^+

20
40
60
80
100
150
200
400

m_N/MeV

$|U_{eN}| = |U_{\tau N}| = 0,\ \mu_{\rm tr} = 1 \times 10^{-6}/\text{GeV}$



$|U_{\mu N}|^2$

10^{-5}
10^{-7}
10^{-9}
10^{-11}
10^{-13}

T2K full (this work)
T2K (this work)
PS191 (this work)
MicroBooNE (Kelly-Machado)

20
40
60
80
100
200
400

m_N/MeV

$|U_{eN}| = |U_{\tau N}| = 0,\ m_N = 250$ MeV

$|U_{\mu N}|^2$

10^{-8}

10^{-10}

10^{-12}

10^{-14}

T2K (this work)

T2K full (this work)

PS191 (this work)

MicroBooNE (Kelly-Machado)

MicroBooNE-γ (this work)

MiniBooNE ROI (Fischer et al)

10^{-9} 10^{-8} 10^{-7} 10^{-6}

$|\mu_{\rm tr}|$/GeV

$|U_{eN}| = |U_{\tau N}| = 0 \quad G_X/G_F = 10^3$

T2K (this work)

T2K full (this work)

PS191 (this work)

MicroBooNE (Kelly-Machado)

BBN (Sabti et al)

$|U_{\mu N}|^2$

10^{-1}

10^{-3}

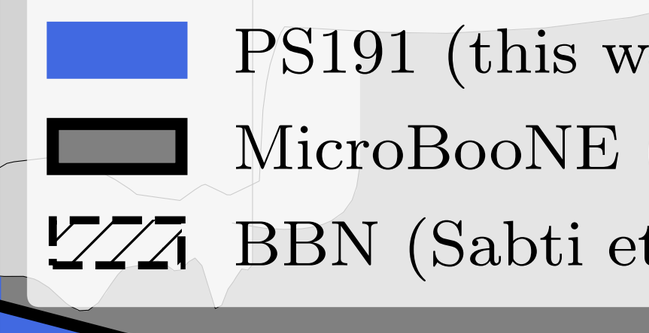
10^{-5}

10^{-7}

10^{-9}

10^{-11}

10^{-13}



20 40 60 80 100 200 400

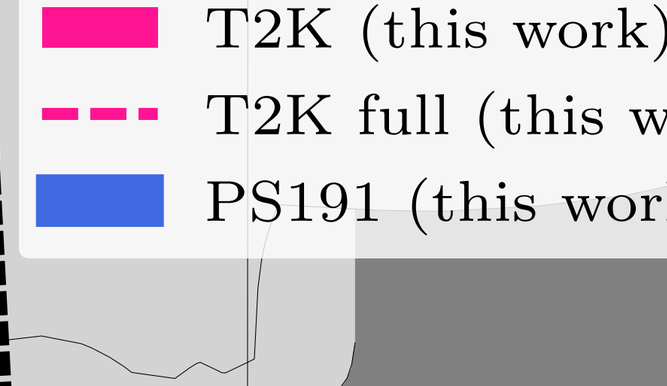
m_N/MeV

$|U_{eN}| = |U_{\tau N}| = 0,\ f_a = 100\ \text{GeV},\ c_N = 0.4,\ c_e = 1,\ m_a = 20\ \text{MeV}$

T2K (this work)
T2K full (this work)
PS191 (this work)
MicroBooNE (Kelly-Machado)
BBN (Sabti et al)
MiniBooNE 2σ ROI (Chang et al)

$|U_{\mu N}|^2$

10^{-1}
10^{-3}
10^{-5}
10^{-7}
10^{-9}
10^{-11}
10^{-13}



20 40 60 80 100 200 400

m_N/MeV

$|U_{eN}| = |U_{\tau N}| = 0,\ c_N = 0.4,\ c_e = 1,\ m_N = 380\ \text{MeV},\ m_a = 20\ \text{MeV}$

$|U_{\mu N}|^2$

10^{-7}

10^{-9}

10^{-11}

10^{-13}

10^{-3}

10^{-2}

10^{-1}

f_a^{-1}/GeV^{-1}

T2K (this work)

T2K full (this work)

PS191 (this work)

MiniBooNE 2σ ROI (Chang et al)