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# Stochastic Neutrino Mixing Mechanism

We propose a mechanism which provides an explanation of the Gallium and antineutrino reactor anomalies. Differently from original Pontecorvo's hypothesis, this mechanism is based on the phenomenological assumption in which the admixture of neutrino mass eigenstates in the moments of neutrino creation and detection can assume different configurations around the admixture parametrized by the usual values of the mixing angles $\theta_{12}$, $\theta_{23}$ and $\theta_{13}$. For simplicity, we assume a Gaussian distribution for the mixing angles in such a way that the average value of this distribution is given by the usual values of the mixing angles and the width of the Gaussian is denoted by $\alpha$. We show that the proposed mechanism provides a possible explanation for very short-baseline neutrino disappearance, necessary to accommodate Gallium and antineutrino reactor anomalies, which is not allowed in usual neutrino oscillations based on Pontecorvo's original hypotheses. We also can describe high-energy oscillation experiments, like LSND, Fermi and NuTeV, assuming a weakly energy dependent width parameter, $\alpha(E)$, that nicely fits all experimental results.

**Primary author:** GUZZO, Marcelo M. (UNICAMP)

**Co-authors:** Mr ZAVANIN, Eduardo (UNICAMP); Prof. PERES, Orlando L.G. (UNICAMP); Prof. HOLANDA, Pedro C. (UNICAMP)

**Presenter:** GUZZO, Marcelo M. (UNICAMP)

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