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Collective Neutrino Oscillations in two dimensions[1] SHASHANK SHALGAR, SAJAD ABBAR, HUAIYU DUAN, Univ of New Mexico — The modification of neutrino flavor oscillation probabilities in the presence of ambient neutrino gas is non-linear in nature. This leads to interesting phenomenology that is not well understood. In this paper we study the effect of removing spatial symmetry in a simplified two dimensional toy model. We focus on the linear stability analysis of the problem and note the presence of instability in both hierarchies. We also note significant modification of neutrino oscillation probabilities due to presence of ambient matter. The presence of spurious oscillations makes the study of the problem using numerical simulations very challenging.

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