Contribution ID: **12** Type: **not specified**

Stationary condition in a perturbative approach for mass varying neutrinos

A perturbative approach for arbitrary choices of the equation of state of the universe is introduced in order to treat scenarios for mass varying neutrinos (MaVaN's) coupled to the dark sector.
The generalized criterion for the applicability of such an approach is expressed through a constraint on the coefficient of the linear perturbation on the dark sector scalar field.
This coefficient depends on the ratio between the variation of the neutrino energy and the scalar field potential.
Upon certain conditions, the usual {\em stationary condition} found in the context of MaVaN models together with the perturbative contribution can be employed to predict the dynamical evolution of the neutrino mass.
Our results clearly indicate that the positiveness of the squared speed of sound of the coupled fluid and the model stability are not conditioned by the {\em stationary condition}

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Track Classification: Poster session