Contribution ID: **39**   Type: **not specified**

Perturbative and non-perturbative aspects of flavour oscillations

Wednesday 11 September 2024 10:15 (30 minutes)

I will review recent work on the quantization for mixed fields, with particular reference to the case of neutrinos. I will argue on the physical relevance of flavor states, which are associated to a condensate structure of the flavor vacuum, induced by a Bogoliubov transformation. Phenomenological consequences of this result will be discussed.

Based on the analogy of oscillating neutrinos with unstable particles, I will show that finite time perturbation theory (approximately) reproduces the oscillation formula obtained by means of the non-perturbative flavor Fock space approach. Finally, will report recent results on the quantum correlations associated to neutrino oscillations, which make them a possible tool for quantum information tasks.

Presenter: BLASONE, Massimo