

MSW effect, solar neutrinos and the possibility to search for new physics

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The MSW effect - the adiabatic flavor conversion of neutrinos in matter driven by density change is realized for solar neutrinos propagating inside the Sun. The features and status of the “LMA MSW solution” are described. Recent results on oscillations of the solar neutrinos inside the Earth are presented. New physics beyond the standard three neutrino paradigm includes non-standard neutrino interactions, mixing with sterile neutrinos, non-unitarity of mixing and non-universality, violation of the fundamental symmetries, dynamical nature of neutrino mass. Searches of new physics effects in solar neutrinos, the present bounds and perspectives will be discussed.

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