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Sterile neutrinos in the 3+1 scenario and solar data

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The LMA solution to the solar neutrino problem predicts an upturn in the electron like event spectrum (CC and ES) below a few MeV which is not seen by any solar neutrino experiment. Moreover it seems to be contradicted by SNO which observes a decrease of the CC event rate at electron energies below 5.3 MeV. We find that a model where a light sterile neutrino is added to the standard picture with a mass squared difference of 10^{-5} eV^2 provides a solution to the inconsistency with a survival probability dip in the approximate range (2-6) MeV. Adding an LSND-like sterile neutrino (the 1+3+1 scenario) does not affect the results.

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