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Limits on neutrino magnetic moments from the spectral analysis of the Borexino Phase-II data

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In this study a contribution to the neutrino-electron scattering caused by the non-zero neutrino magnetic moment has been searched for in the Borexino Phase-II solar neutrino data. No significant deviations from the expected shape are found, and as a result, a new limit on the effective magnetic moment of solar neutrinos is obtained, namely, $\mu_{\nu} < 2.8 \cdot 10^{-11} \mu_B$ (90% C. L.). This result has been used to constrain the magnetic moments of flavor eigenstates, and the ones of mass eigenstates for Dirac neutrinos and the transition moments of Majorana neutrinos. Comparison with the results of other experimental studies is given.

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