

The indication for 40K geo-antineutrino flux with Borexino phase-III data

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We provide the indication of high flux of 40K geo-antineutrino and geo-neutrino (40K-geo-($\nu^-+\nu$)) with Borexino Phase III data. This result was obtained by introducing a new source of single events, namely 40K-geo-($\nu^-+\nu$) scattering on electrons, in multivariate fit analysis of Borexino Phase III data. Simultaneously we obtained the count rates of events from ^7Be , pep and CNO solar neutrinos. These count rates are consistent with the prediction of the Low metallicity Sun model SSM B16-AGSS09. MC pseudo-experiments showed that the case of High metallicity Sun and absence of 40K-geo-($\nu^-+\nu$) can not imitate the result of multivariate fit analysis of Borexino Phase III data with introducing 40K-geo-($\nu^-+\nu$) events. We also provide arguments for the high abundance of potassium in the Earth.

Primary author: KARPIKOV, Ivan (INR RAS)

Co-authors: BEZRUKOV, Leonid (INR RAS); SINEV, Valery (INR RAS)

Presenter: KARPIKOV, Ivan (INR RAS)

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