

Stars within 10 PC from the Sun and their neutrino flux at Earth

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This work explores the opportunity of whether neutrinos produced by stars from the solar neighborhood might be detectable in the near future by means of their theoretical predicted fluxes at Earth. The prospects to be the strongest stellar neutrino sources, the main stars in the α -Centauri system, Sirius A, Arcturus, Procyon A, Vega, Fomalhaut and Altair, were taken from the Gliese catalog (Gliese & Jahreiß, 1991) and their data were used to create numerical models, that, while reproducing their radius, luminosity and effective temperature within the known error bars, allow to estimate their neutrino luminosity. The shapes on what would be their spectra, compared to the solar neutrino spectrum, are also shown. The possibility for a potential detection, in view of the current and next generation neutrino telescopes is discussed. In the same way as the study of planets has been extended to exoplanets and helioseismology towards asteroseismology, this would be another new, unique extension of solar system studies out into the Milky Way.

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