TeV Neutrinos from Companion Stars of Rapid-Rotating Neutron Stars

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We have estimated the number flux of of ν_μ's which are produced due to the hadronic interactions between the cosmic rays coming from a neutron star and the matter in a companion star. The event rate at 1 km^2 detectors of high-energy neutrinos such as ICECUBE, ANTARES and NESTOR is also estimated to be 2.7×10^4 events yr^{-1} when the source is located at 10 kpc away from the Earth. We have estimated the number of such a system and concluded that there will be several candidates in our galaxy. Taking these results into consideration, this scenario is promising and will be confirmed by the future observations.

References

[1] S.Nagataki, PRL, submitted (hep-ph/0202243)