

A mass estimative for the black hole candidate 1E 1740.7-2942 using broad band x-ray spectrum

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The object 1E 1740.7-2942 is one of the strongest hard X-ray emitters around the Galactic Center region. It was classified as a black hole candidate due to its spectral similarities with Cyg X-1. The lack of information about its counterpart prevents the mass function $f(M)$ of the system from being determined, since it depends on parameters usually better estimated through optical/infrared observations of the companion. In the context of alternative methods, broad band spectrum and the presence of a broadened iron line have opened the possibility of weighting black holes with only X-ray data. In this study, we gather public available data of 1E 1740.7-2942 from 3 different missions to produce a broad band spectrum. NuSTAR data suggest the presence of an iron line and a reflection component. Broad band coverage and thus better fit modeling was achieved including data from XMM and INTEGRAL. Although the observations were not taken simultaneously, their individual fits indicate that the source was in the same spectral state. Preliminary results point to a black hole mass around 4 solar masses for 1E 1740.7-2942.

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