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Strange stars confronting with the observations: non-Newtonian gravity effects, or existence of a dark-matter core inside the stars

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We find that the existence of strange stars is ruled out by the dimensionless tidal deformability of a $1.4 M_{\text{sun}}$ star of GW170817 and the mass of PSR J0740+6620, both for the standard MIT bag model and for the density dependent quark mass model. However, if non-Newtonian gravity effects are considered, strange stars can exist for certain ranges of the values of the non-Newtonian gravity parameter. An alternative explanation to the observations is to suppose that strange stars in GW170817 have a dark-matter core.

Author: YANG, Shu-Hua (Central China Normal University, Wuhan, China)

Co-authors: Dr PI, Chun-Mei (Hubei University of Education, Wuhan, China); Prof. ZHENG, Xiao-Ping (Central China Normal University, Wuhan, China); Prof. WEBER, Fridolin (University of California at San Diego, La Jolla, California, USA)

Presenter: YANG, Shu-Hua (Central China Normal University, Wuhan, China)