Contribution ID: **69** Type: **Talk**

Subsolar mass compact objects

Tuesday 27 May 2025 12:54 (12 minutes)

Neutron stars having a mass smaller than about 1.17 Ms cannot be produced by any "standard"astrophysical mechanism. On the other hand, the analysis of SAX J1808.4-3658 has suggested a mass of about 0.8 Ms, or smaller (Di Salvo et al. MNRAS 483 (2019) 767) and a similar mass has been obtained by the analysis of HESS J1731-347 (Doroshenko et al. Nature Astronomy 2022). Also, masses and eccentricities of Gaia binaries suggest the existence of ~ 1 Ms NSs (Shahaf et al. MNRAS 518, 2991 (2023)).

We have shown that strange quark stars having a mass in that range can instead be produced (Di Clemente et al. Astron.Astrophys. 678 (2023) L1; Di Clemente et al. Astrophys.J. 967 (2024) 2, 159).

Even though the previous objects are not black holes, primordial black holes can also have a mass in that range. LV has not identified objects in that mass range, although a couple of mergers suggested possible candidates. We show that ET should be able to distinguish between mergers of black holes and of strange quark stars, since the estimated tidal deformability of subsolar mass strange quark stars is very large.

Primary authors: DRAGO, Alessandro (University of Ferrara); DI CLEMENTE, Francesco (INFN, sezione di Ferrara, Italy - University of Houston, USA); PAGLIARA, Giuseppe (University of Ferrara)

Presenter: DRAGO, Alessandro (University of Ferrara)

Session Classification: Observational Science (OSB)

Track Classification: Observational Science (OSB): Div6