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Do hadronic stars and strange quark stars coexist?

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In the last years new and exciting data on neutron stars have been obtained by the observations of gravitational waves in merger processes, by the recent X-ray observations of NICER of the closest pulsars, by the multiple band observations of new kind of explosive events, namely the kilonova discovered in 2017. All these data show a (mild) tension among themselves: GW170817 requires a soft equation of state for dense matter, GW190814 might instead indicate that masses up to 2.6M_sun could exist, thus favoring a stiff equation of state. I will discuss a possible scenario that aims to provide a consistent picture of all the experimental and observational information, namely the two-families scenario. This scenario is based on the hypothesis that strange quark matter is absolutely stable. The consequences of this scenario are far reaching: the possible existence of strangelets would provide a significant component of dark matter in the universe.

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