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Hybrid star construction with the extended linear sigma model

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The interior of compact stars is usually divided into two major parts, the outer part called crust and the inner part called core. There are several possibilities for the composition of these parts. One is a hybrid star, in which the crust contains nuclear matter, while the inner core contains quark matter. Since at large baryon densities one can work with effective models, and nuclear and quark matter are usually described by different models, some unification of the two parts is needed. We show two different approaches for a composite model and some recent developments in hybrid star constructions using the extended linear sigma model for modeling the quark matter at the core.

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