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Crystalline condensates in compact stars

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The phase structure of hadronic matter at high density could be extremely rich. In particular, several effective model calculations, as well as more refined studies based directly on QCD, suggest that spatially inhomogeneous phases might form in cold and dense quark matter, possibly leading to significant phenomenological consequences for the physics of compact stars.

In this contribution, I will discuss this scenario focusing on the formation of crystalline chiral condensates and discuss their influence on compact star observables as well as implications for the newly-born gravitational wave astronomy.

Author: CARIGNANO, Stefano

Presenter: CARIGNANO, Stefano

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