

Time-crystal ground state in Cosmology and production of gravitational waves from QCD phase transition

We propose a novel mechanism for the production of gravitational waves in the early Universe that originates from the relaxation processes induced by the QCD phase transition. While the energy density of the quark-gluon mean-field is monotonously decaying in real time, its pressure undergoes a series of violent oscillations at the characteristic QCD time scales that generates a primordial multi-peaked gravitational waves signal in the radio frequencies' domain. The signal as an echo of the QCD phase transition, and is accessible by the FAST and SKA telescopes.

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