

A new first-order QCD phase transition in the early universe and gravitational waves

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We extend the Standard Model quantum chromodynamics theory (QCD) theory and naturally realize a first-order phase transition at high temperatures above 1 GeV without running into current constraints from both heavy ion colliders and early cosmology. This phase transition is from a non-perturbative effect of the QCD and can have a great impact on the early universe, including gravitational wave signals detectable for future space interferometers.

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