

Phase transition during inflation and the gravitational wave signal at pulsar timing arrays

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We explore the possibility that the new results from the pulsar timing array (PTA) observations could come from the secondary gravitational wave sourced by curvature perturbations generated by a first-order phase transition during the inflation. Based on the results of a field-theoretic lattice simulation of the phase transition process, we show that the gravitational wave signal generated through this mechanism can naturally account for the new results from the PTAs. The Bayes analysis shows that our model can well fit the power spectrum of the signal observed by NANOGrav.

Presenter: AN, Haipeng (Tsinghua University)

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