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Gauge-Invariant Constraints on Gravitational Waves from a First-Order Electroweak Phase Transition

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We employ a derivative expansion method to analyze the effective action within the $SU(2)$ -Higgs model at finite temperature. By utilizing a specific power counting scheme, we compute gauge-invariant constraints on primordial gravitational waves arising from a thermal first-order electroweak phase transition. We then compare these results with findings from a pre-existing nonperturbative analysis, effectively benchmarking the framework's validity and assessing its implications for the detectability of a stochastic gravitational wave background by forthcoming experiments such as LISA.

Mini Symposia (Invited Talks Only)

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