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A new consequence of Inflation: Imprinting the Standard Model in the sky

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The existence of the Standard Model (SM) Higgs implies that a gravitational wave (GW) background is generated, soon after the end of inflation, by the decay products of the Higgs. Theoretically all Yukawa and SU(2) gauge couplings of the SM are imprinted as features in the GW spectrum. In practice, the signal from the most strongly coupled species dominates, rendering inaccessible the information on the other species. If detected, this background could be used for measuring properties of high-energy particle physics, including beyond the SM. To achieve this goal, new high frequency detection technology is required, beyond that of currently planned detectors.

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