

# Dimensionally reduced EFTs for cosmological phase transitions

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The upcoming launch of LISA has recently strengthened the interest in exploring Standard Model extensions where a gravitational wave-producing, strong first-order electroweak phase transition (SFOEWPT) occurs in the early universe. One of the preferred approaches to the study of thermally induced FOPTs is through the construction of a dimensionally reduced effective field theory (3dEFT). In this talk we will summarize the key aspects of this approach. We shall provide a rigorous perturbative method to compute the essential magnitudes for modeling the GW production during a SFOPT. We will discuss the importance of including higher-order effective operators in these computations, which drastically change the predictions of GW-related magnitudes and are, as far as the authors know, often overlooked in the current literature.

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**Session Classification** : Contributed Talks + Roadmap for the Spanish contribution to LISA