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From symmetries to gravitational waves: a self-consistent calculation

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Predicting the gravitational wave spectrum from symmetry breaking in the early universe during first-order phase transitions is key to understanding these symmetries. In this talk I present our recent advancements in developing a self-consistent framework for predicting such gravitational wave spectra. Our approach enhances existing calculations by providing a more comprehensive treatment of the underlying physics, from the particle physics model to the hydrodynamic evolution of bubbles and the resulting gravitational wave production. The talk will emphasize how this self-consistency refines gravitational wave predictions and explore its implications for understanding early universe cosmology.

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