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Holography for phase transitions

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First-order phase transitions represent a golden opportunity into uncovering new physics as well as into the QCD phase diagram. These transitions typically proceed through nucleation, expansion and collision of bubbles. As a consequence, the spectrum depends on out-of-equilibrium properties that are challenging to obtain, such as the wall speed. In this talk I will review recent progress in studying bubble dynamics in strongly coupled theories using holography, which is highly suited to study dynamical situations as it maps QFT problems to classical dynamics of black hole horizons. I will further present results for superheated transitions in a theory whose phase diagram mirrors that of QCD, relevant for neutron stars.

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