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Phase transitions and domain walls with holography-inspired hydrodynamics

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Studying phase transitions and domain walls using the gauge/gravity duality typically leads to challenging tasks in numerical gravity. However, such tasks can be dramatically simplified by considering hydrodynamics matched to the holographic model. In this talk, I discuss extended hydrodynamics (perfect fluid hydrodynamics plus a scalar, i.e. the order parameter of the transition) fitted to data from the holographic Witten model to study the physics of phase transitions. Among other things, we find a simple formula for the velocity of moving walls and surprising behavior of hot plasma remnants in the last stages of the transition in an expanding setup.

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