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# Poster: Bubble-Wall Velocity from Hydrodynamical Simulations

Terminal velocity reached by bubble walls in first-order phase transitions is an important parameter determining both primordial gravitational wave spectrum and the production of baryon asymmetry in models of electroweak baryogenesis. We developed a numerical code to study the real-time evolution of expanding bubbles and investigate how their walls reach stationary states. Our results agree with profiles obtained within the so-called bag model with very good accuracy; however, not all such solutions are stable and realized in dynamical systems. Depending on the exact shape of the potential there is always a range of wall velocities where no steady-state solutions exist. This behavior in deflagrations was explained by hydrodynamical obstruction where solutions that would heat the plasma outside the wall above the critical temperature and cause local symmetry restoration are forbidden. For even more affected hybrid solutions causes are less straightforward. In addition, we show that in local thermal equilibrium, stationary states are reached only in narrow range of parameters and runaways are generic scenarios due to early-stages evolution of the bubble-wall.

## Would you be interested in presenting a poster? (this will not impact the decision on your talk)

yes

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