Hydrodynamical description of first-order phase transitions in nuclear systems

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Solutions of hydrodynamical equations are presented for an equation of state allowing for a first-order phase transition. The processes of growth and dissolution of seeds of various sizes and shapes in meta-stable phases (like super-cooled vapor and super-heated liquid) are studied, as well as the dynamics of unstable modes in the spinodal region. Applications to the description of the first-order phase transitions in nuclear systems are discussed.