

Shock formation in decelerated spacetimes

Maximilian Ofner

Over the past decades, the mathematical properties of the initial value problem for expanding spacetimes have been studied extensively. In particular, it was shown that a universe with accelerated expansion facilitates the stabilization of spacetime and matter within it. By contrast, classical results show the formation of shock singularities in quasilinear hyperbolic systems in the absence of a damping mechanism. In recent years, this dichotomy has intensified interest in the dynamics of matter and spacetime in the regime of decelerated expansion. In this talk we will discuss recent work in this subfield with a focus on fluids and shocks.