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Hyperbolic vacuum decay

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The properties of an hyperbolically-expanding wormhole are studied. Using a particular equation of state for the fluid on the wormhole throat, we reached an equation of motion for the throat that leads to a constant surface energy density σ. The Lagrangean leading to the above equation of motion contains the "rest mass" of the expanding particle as a potential energy. The associated Hamiltonian corresponds to a relativistic free par- ticle of a total Planck energy E_P . From the energy constraint we obtained that the cosmological constant is of Planck order but hidden at very tiny scales, in accordance with Carlip's recipe.

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