Two-mode squeezed vacuum state coupled to the common thermal reservoir

abstract Entangled states play a crucial role in quantum information protocols, thus the dynamical behavior of entanglement is of great importance. In this paper we consider a two-mode squeezed vacuum state coupled to one thermal reservoir as a model of an entangled state embedded in an environment. As a criterion for entanglement we use a continuous-variable equivalent of the Peres-Horodecki criterion, namely the Simon criterion. To quantify entanglement we use the logarithmic negativity. We derive a condition, which assures that the state remains entangled in spite of the interaction with the reservoir. For comparison we also consider a model in which each of both modes is coupled to its own reservoir.