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## Atomic Coupler with Two-Mode Squeezed Vacuum States

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### Abstract

We investigate the entanglement transfer from the two-mode squeezed state (TMS) to the atomic system by studying the dependence of the negativity on the coupling between the modes of the waveguides. This study is very important since the entanglement is an important feature which has no classical counterpart and it is the main resource of quantum information processing. We use a linear coupler which is composed of two waveguides placed close enough to allow exchanging energy between them via evanescent waves. Each waveguide includes a localized atom.

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