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### Opacity of Electromagnetically Induced Transparency for Quantum Fluctuations

We analyze the propagation of a pair of quantized fields inside a medium of three-level atoms in a Lambda configuration. We calculate the stationary quadrature noise spectrum of the field, in the case where the probe field is in a squeezed state and the atoms show electromagnetically induced transparency. We find an oscillatory transfer of the initial quantum properties between the probe and pump fields which is most strongly pronounced when both fields have comparable intensities. This implies that the quantum state measured after propagation can be completely different from the initial state, even though the mean values of the field are unaltered. We also study the influence of the Doppler effect in the field propagation.



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