Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

Damped Oscillations of a BEC in a Double-Well Potential[1] T. H. BERGEMAN, D. ANANIKIAN, SUNY Stony Brook — We numerically study the evolution of a one-dimensional Bose gas trapped in a double-well potential below critical temperature. Following ZNG theory[1], the coupled dynamics of the condensate and non-condensate is described by the generalized Gross-Pitaevskii equation and the Bolzmann equation respectively. In one dimension the collision integral C_{22} vanishes and only collisions between the condensate and non-condensate (C_{12}) are included. The excitations are treated in local density approximation. Initially the non-condensate distribution function is approximated by the local equilibrium Bose distribution. For nonzero temperature the thermodynamical chemical potential is not the same as the eigenvalue of the stationary Gross-Ptaevskii equation. The collision integral C_{12} produces a source term which plays an important role in equilibration processes.
1. E. Zaremba, T. Nikini and A. Griffin. J. Low Temp. Phys. **116**, 277 (1999).

[1]Supported by NSF and ARO

T. H. Bergeman

Date submitted: 25 Jan 2006 Electronic form version 1.4