

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Effects of Dissipation in a BEC Dimer T. PUDLIK, Boston University, H. HENNIG, Harvard University, D. WITTHAUT, MPI-DS, Goettingen, D.K. CAMPBELL, Boston University — Recently¹ we have shown that a “global phase space” (GPS) approach provides valuable understanding of the long-time coherence and Einstein-Podolsky-Rosen entanglement of a Bose-Einstein Condensate trapped in a two-well optical lattice (“BEC dimer”). In particular, the GPS approach allows one to distinguish purely quantum effects from those which are captured by semi-classical methods. The GPS approach in Ref. (1) was applied in the limit of zero dissipation. In the present contribution, we extend the approach to allow for dissipation and again compare the results with relevant experiments. We also report preliminary results on a BEC trimer, for which the semi-classical phase space is no longer completely integrable, in contrast to the the dimer.

¹Holger Hennig, Dirk Witthaut, and David K. Campbell, Phys. Rev. A, to appear

David Campbell
Boston University

Date submitted: 26 Nov 2012

Electronic form version 1.4