

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Transport Theory for Dilute Bose-Einstein Condensates LINDA REICHL, ERICH GUST, Univ of Texas, Austin — We obtain microscopic expressions for the six hydrodynamic modes of a dilute Bose-Einstein condensate: two transverse (shear) modes and four longitudinal modes corresponding to first and second sound [1]. Our microscopic expressions include both the speed of the two types of sound and the rate of relaxation of the sound waves. We obtain numerical values for the shear viscosity of a dilute BEC composed of bosons that interact via a contact potential. Our values for the shear viscosity are obtained using the eigenvalues and eigenvectors of the three types of collision operators that govern the relaxation of the condensate [2]. 1. L.E. Reichl and Erich D. Gust, Phys. Rev. A 88 053603 (2013). 2. E. D. Gust and L.E. Reichl, J. Low Temp. Phys. 170 43 (2013).

Linda Reichl
Univ of Texas, Austin

Date submitted: 14 Nov 2013

Electronic form version 1.4