

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Upper Branch Bosons at High Temperatures WEIRAN LI, TIN-LUN HO, the Ohio State University — We use a generalized Nozieres-Schmitt-Rink (NSR) approach, which excludes the molecule poles in the T-matrix, to study the “upper branch” Bose gases at high temperatures. We show that when we tune the scattering length from positive side across the resonance, the Bose system can remain stable even with attractive interactions at relatively high temperatures. The energy of this upper branch Bose gas has a maximum at negative scattering length, which indicates pair formations are enhanced by Bose statistics in a many body system, in contrast to the Fermionic case where the maximum occurs at positive scattering length.¹

¹V.B.Shenoy and Tin-Lun Ho, arXiv:1106.0960, to appear in PRL.

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Date submitted: 05 Dec 2011

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