

Abstract Submitted  
for the DAMOP19 Meeting of  
The American Physical Society

**An observation of Tomonaga-Luttinger liquid in one-dimensional interacting Bose gases**<sup>1</sup> XIWEN GUAN, Chinese Academy of Sciences, ZHEN-SHENG YUAN'S GROUP TEAM<sup>2</sup>, FENG HE COLLABORATION<sup>3</sup> — It is a long standing challenge to observe quantum liquids in low-dimensional quantum systems. In this talk, I will present a fundamental understanding of universal low energy physics in one dimensional quantum systems, showing the origin of the Tomonaga-Luttinger liquid. Then I will further discuss an experimental observation of Tomonaga-Luttinger liquid in the Lieb-Linger model.

[1] Yang, et. al., Phys. Rev. Lett. 119, 165701 (2017)

[2] Jiang, et. al., Chinese Physics. B 24, 050311 (2015)

[3] Cheng, et. al., Phys. Rev. B 97, 121111(R) (2018)

<sup>1</sup>The key NSFC grant No. 11534014 and the National Key R&D Program of China No. 2017YFA0304500

<sup>2</sup>University of Science and Technology of China

<sup>3</sup>PhD student

Xiwen Guan  
Chinese Academy of Sciences

Date submitted: 06 Feb 2019

Electronic form version 1.4