

# *n*-Translation Algebra and Higher Representation Theory

Jin Yun Guo

Department of Mathematics,  
Hunan Normal University,  
Changsha, China,  
Email: gjy@hunnu.edu.cn

**Abstract.** We introduce *n*-translation algebra, as an almost Koszul algebra with an *n*-translation quiver as its bound quiver. Under some condition, we show that the trivial extension of an *n*-translation algebra is an  $(n + 1)$ -translation algebra, and that the smash product of an *n*-translation algebra is *n*-translation algebra. We also show how *n*-translation algebra is related to the *n*-representation theory of Iyama and Oppermann.

---