

Homology of the Lie algebra $\mathfrak{gl}(\infty, R)$

ALICE FIALOWSKI AND KENJI IOHARA

Dedicated to the memory of our friend Jean-Louis Loday

Abstract. In this note we compute the homology of the Lie algebra $\mathfrak{gl}(\infty, R)$ where R is an associative unital k -algebra which is used in higher dimensional soliton theory [19]. When k is a field of characteristic 0, our result justifies an old result of Feigin and Tsygan [5]. The special case when $R = k = \mathbb{C}$ appeared first in soliton theory (*cf.* [9]).

Mathematics Subject Classification (2010): 17B65 (primary); 16S35, 16E40 (secondary).