

Siskind's conjecture and the growth functions of two bridge link groups

YASUSHI YAMASHITA

(Joint work with Yu Fujikawa (Nara Women's University), Yoshiyuki Nakagawa (Ryukoku University), and Makoto Tamura (Osaka Sangyo University))

The growth function of a finitely generated group with respect to a set of generators is defined to be the formal power series whose coefficient of degree n term is the number of elements in the group of word length equal to n with respect to the generators. Computations of growth functions are often interesting challenges and knot groups are among the open cases. As a first step, Siskind gave a conjecture for $(2, n)$ -torus link groups in 2002.

In this talk, we prove Siskind's conjecture and propose a conjecture for two bridge link groups. We also discuss some remarkable properties of our conjectured functions. Namely, they are rational functions whose numerators and denominators are Newton-like polynomials. They seem to be closely related to epimorphisms between two bridge link groups. Also, computer experiments on hyperbolic volumes of the complements of two bridge links and the entropies of the corresponding groups calculated by the conjectured functions will be presented.

NARA WOMEN'S UNIVERSITY