

COMPUTING HIGH-DIMENSIONAL GROUP COHOMOLOGY VIA DUALITY

Fudan Topology Seminar

Speaker: Benjamin Brück

ETH Zürich

Time: Tue, Mar. 21st, 15:00-17:00

Zoom Meeting ID: 853 0188 1524

Password: Fudan2023

Abstract: In recent years, duality approaches have yielded new results about the high-dimensional cohomology of several groups and moduli spaces, such as $SL_n(\mathbb{Z})$ and M_g . I will explain the general strategy of these approaches and survey results that have been obtained so far.

To give an example, I will first explain how Borel-Serre duality can be used to show that the rational cohomology of $SL_n(\mathbb{Z})$ vanishes near its virtual cohomological dimension. This is based on joint work with Miller-Patz-Sroka-Wilson and builds on results by Church-Farb-Putman.

I will then put this into a more general context by giving an overview of analogous results for mapping class groups of surfaces, automorphism groups of free groups and further arithmetic groups such as $SL_n(\mathcal{O}_K)$ and $SP_{2n}(\mathbb{Z})$.