

The lower central series of partitioned motion groups

Martin Palmer-Anghel

“Biracks and Biquandles” — Leeds — 16–19 December 2024

Abstract.

An important invariant of a group is its “LCS length”, which records the depth at which its lower central series (LCS) stabilises. This is relevant for example when constructing homological representations of motion groups or mapping class groups, when one needs to know about the LCS of an associated “partitioned motion group”. Motivated by this, I will talk about joint work with Jacques Darné and Arthur Soulié, in which we completely determine the LCS lengths of (almost) all partitioned surface braid groups and partitioned loop braid groups. The answer turns out to depend subtly on the combinatorics of the partition and the topology of the underlying surface.