On bases and reducibility for the Lawrence-Bigelow representations of the braid groups

Martin Palmer　∥　Talk at the GeMAT seminar, IMAR, 27 November 2019

Abstract.

The *Lawrence-Bigelow representations* of the braid groups were first introduced in 1990 by Ruth Lawrence and later used by Stephen Bigelow and Daan Krammer to show that the braid groups are linear. We will discuss several different viewpoints on these representations — all related by isomorphisms or dualities — including a new viewpoint that we call the *special Lawrence-Bigelow representations*.

We will explain how to derive, geometrically, free generating sets for four of these representations, and we will describe two natural injections relating the classical and the special Lawrence-Bigelow representations. As a consequence, we will deduce that the Lawrence-Bigelow representations (of height $m \geqslant 2$) are reducible (although they are known to be indecomposable).

This represents joint work with Cristina Anghel