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McMullen Polynomial for free-by-cyclic groups.

A free group outer automorphism determines a free-by-cyclic group G and a homomorphism from G to Z. When the outer automorphism can be represented by an expanding, irreducible train-track map, Dowdall-Kapovich-Leininger showed that there exists an open cone neighborhood A in Hom(G;R) with the property that for every primitive integral there is a new decomposition of G as a free-by-cyclic group inducing the that homomorphism. In this talk, we define an polynomial, that is analogous to McMullen's Teichmæuller polynomial for fibered cones of 3-manifolds, that computes the dilatation of outer automorphisms associated to integral points in the DLK cone. The polynomial does not depend on the choice of train track map. This is a joint work with Yael Algom-Kfir and Eriko Hironaka.