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The beautiful theory developed by Thurston, Fried and McMullen provides a near complete picture of the various ways a hyperbolic 3–manifold  $M$  can fiber over the circle. Namely, there are distinguished convex cones in the first cohomology  $H^1(M; \mathbb{R})$  whose integral points all correspond to fibrations of  $M$ , and the dynamical features of these fibrations are all encoded by McMullen’s “Teichmüller polynomial.”

This talk will describe recent work developing aspects of this picture in the setting of a free-by-cyclic group  $G$ . Specifically, I will introduce a polynomial invariant that determines a convex polygonal cone  $\mathcal{C}$  in the first cohomology of  $G$  whose integral points all correspond to algebraically interesting splittings of  $G$ . The polynomial invariant additionally provides a wealth of dynamical information about these splittings. This is joint work with Ilya Kapovich and Christopher J. Leininger. (Received January 20, 2014)