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*Assembly maps for topological cyclic homology.*

I will present the results of [<http://dx.doi.org/10.1515/crelle-2017-0023>], in which we use assembly maps to study the topological cyclic homology of group algebras. Topological cyclic homology ( $TC$ ) is a far-reaching generalization of Hochschild homology and a powerful tool in algebraic  $K$ -theory. We prove that, for any finite group  $G$ , any connective ring spectrum  $\mathbb{A}$ , and any prime  $p$ , the spectrum  $TC(\mathbb{A}[G]; p)$  is determined by  $TC(\mathbb{A}[C]; p)$  as  $C$  ranges over the cyclic subgroups of  $G$ . More precisely, we prove that for any finite group the assembly map with respect to the family of cyclic subgroups induces isomorphisms on all homotopy groups. For infinite groups we establish pro-isomorphism, (split) injectivity, and rational injectivity results, as well as counterexamples to injectivity and surjectivity. In particular, for hyperbolic groups and for virtually finitely generated abelian groups, we show that the assembly map with respect to the family of virtually cyclic subgroups is injective but in general not surjective, in contrast to what happens in algebraic  $K$ -theory. (Received July 24, 2017)