

# Algebra/Topology Seminar

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## HOPFIAN WREATH PRODUCTS AND THE STABLE FINITENESS CONJECTURE

Thursday, November 10, 2022  
3:00 p.m. in ES-143

ABSTRACT. *Wreath products* appear often as a case study in questions related to residual finiteness, thanks to a beautiful and simple characterization of Gruenberg. A related property is the Hopf property: a group is *Hopfian* if every self-epimorphism is an isomorphism.

Every finitely generated residually finite group is Hopfian, which motivates looking at the Hopf property for wreath products, in hope of a simple characterization analogous to Gruenberg's.

It turns out that this problem is infinitely harder than Gruenberg's, even when focusing on the following special case: if  $G$  is finitely generated abelian, and  $H$  is finitely generated Hopfian, is the wreath product  $G \wr H$  Hopfian? We will see that this question is equivalent to one of the most longstanding open problems in group theory: Kaplansky's *stable finiteness conjecture*, which is strongly related to the zero-divisor and idempotent conjectures, to the existence of a non-sofic group, and to Gottschalk's surjunctivity conjecture.

This is joint work with Henry Bradford (Cambridge).