

Colloquium

**Daniel A. Ramras,
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**Monday, January 9th,
2:00p.m., HH-3017**

Large-scale geometry and group rings.

Abstract:

In recent years a great deal of progress has been made on various conjectures regarding the nature of group rings (for infinite, discrete groups) and their relation to the geometry of manifolds. Most of this work depends heavily on geometric features of the group in question, when viewed as a metric space through the word metric. Of particular importance is the large-scale geometry of the group, which captures the behavior of this metric space "at infinity" while ignoring its local structure. In this talk, I'll explain how geometric algebra can be used to relate modules over group rings to large-scale geometry, and I'll discuss some of the recent algebraic and geometric results that have come out of this viewpoint. Parts of this work are joint with Romain Tessera and Guoliang Yu.