

IMIA Operator Algebra Seminar
University of Wollongong

Title: Finite summability in K-homology of Cuntz-Krieger algebras

Speaker: Bram Mesland (University of Warwick)

Time and Date: 3:30pm Thursday, 31 October 2013

Location: Room 39C.meeting room

Abstract: It is well known that purely-infinite simple C^* -algebras do not admit finitely summable spectral triples. In this talk I will show that, in the case of Cuntz-Krieger algebras, the situation for Fredholm modules is quite different. Previously, similar results have been obtained by Emerson-Nica for boundary crossed products of Gromov-hyperbolic groups.

The Poincare duality result of Kaminker-Putnam establishes an explicit extension class in the K-homology of $O_A \otimes O_{A^T}$. This class implements the duality between the Cuntz-Krieger algebras O_A and O_{A^T} . By constructing canonical splittings for Kaminker-Putnam type extensions, one obtains Fredholm modules dual to given K-theory classes. The summability properties of these Fredholm modules allows one to deduce that every class in $K^1(O_A)$ can be represented by a finitely summable Fredholm module.

If time allows I will indicate how similar constructions can be done in a bivariant setting, and how these results relate to the unbounded picture of K-homology.

This is joint work with Magnus Goffeng (Hannover).