

**IMIA Operator Algebra and Noncommutative Geometry Seminar**  
University of Wollongong

Title: Simplicity of twisted  $k$ -graph algebras

Speaker: Aidan Sims (University of Wollongong)

Time and Date: 3:30pm Thursday, 18 December 2014

Location: Room 39C.meeting room

Abstract: Consider a row-finite  $k$ -graph with no sources. Thanks to Dave Robertsons work as a summer scholarship student some years back, we know exactly when the associated  $C^*$ -algebra is simple: the  $k$ -graph has to be cofinal and aperiodic. For twisted  $k$ -graph algebras, the question is a bit harder, as the example of rotation algebras shows. Ben Whitehead showed that the  $k$ -graph still has to be cofinal, but it doesnt have to be aperiodic. Ill discuss recent joint work with Alex and David that identifies exactly when a twisted  $C^*$ -algebra associated to a row-finite  $k$ -graph with no sources is simple, and illustrate the result by applying it to twisted crossed products of  $k$ -graph algebras by quasi-free actions of free abelian groups.