

IMIA Operator Algebra and Noncommutative Geometry Seminar
University of Wollongong

Title: Indefinite spectral triples and foliations of spacetime

Speaker: Koen van den Dungen (University of Wollongong and Australian National University)

Time and Date: 3:30pm Thursday, 11 September 2014

Location: Room 39C.meeting room

Abstract: Motivated by Dirac operators on Lorentzian manifolds, we propose a new framework to deal with non-symmetric and non-elliptic operators in noncommutative geometry. We provide a definition for indefinite spectral triples, and show that these correspond bijectively with certain pairs of spectral triples. Examples also include Euclidean spacetimes with harmonic oscillator potential.

Next, I will show how a special case of indefinite spectral triples can be obtained from a family of (spacelike) spectral triples parametrised by a time parameter. In particular, this construction provides a convenient setting to study the Dirac operator on a foliated spacetime.

This talk is based on ongoing joint research with Adam Rennie.