

Seminar

Prof. Nigel Higson

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A rapid tour through noncommutative
geometry: from integral equations and the
spectral theorem to the index theorem and
beyond

Wednesday, November 21, 2018

at 15:00 h

ESI, Boltzmann Lecture Hall

Abstract: Hilbert's theory of integral equations, now more than one hundred years old, is a famously successful amalgam of matrix algebra and analysis. One way to look at Alain Connes' much newer noncommutative geometry is to see it as an evolution of the theory of integral equations that incorporates geometric ideas into Hilbert's work, and I shall try to develop this perspective in my lecture. I will focus on just one construction, that of Connes' tangent groupoid, but even so there will be opportunities to glimpse at Weyl's asymptotic law, the Atiyah-Singer index theorem, and recent work of Bismut on orbital integrals and the hypoelliptic Laplacian. with $\nu=0$.

A. Rennie

November 12, 2018