

Programme on  
“Bivariant K-theory in Geometry and Physics”

November 5 - 30, 2018

organized by

Alan Carey (ANU, Canberra), Harald Grosse (U Vienna), Bram Mesland (U Bonn), Adam Rennie  
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Seminars in Week 2, November 12 – 16, 2018

The seminar meets 10:30 - 11:30 in the Boltzmann Lecture Hall of the Erwin Schrödinger Institute

- **Tuesday, November 13, 2018**

**Speaker:** Paul Baum (Penn State University)

**Title:** Twisted  $K$ -homology.

**Abstract:** TBA

- **Wednesday, November 14, 2018**

**Speaker:** Joachim Cuntz (Westfälische Wilhelms Universität Münster)

**Title:** Linear functionals on  $C^*$ -algebras and their commutative subalgebras.

**Abstract:** Continuity of a linear functional on a  $C^*$ -algebra is determined by its restriction to commutative subalgebras.

- **Thursday, November 15, 2018**

**Speaker:** Ryszard Nest (University of Copenhagen)

**Title:** Group cocycles and algebraic K-theory.

**Abstract:** We will describe a construction of higher group cocycles using groups acting on higher categories and sketch a couple of examples: the two-cocycle responsible for the loop group extensions and a three cocycle computing Tate invariant of Milnor  $K_3$ .

This is a joint work with Jens Kaad and Jesse Wolfson.

- **Friday, November 16, 2018**

**Speaker:** Giovanni Landi (Università degli studi di Trieste)

**Title:** Line bundles over noncommutative spaces.

**Abstract:** Cuntz-Pimsner algebras of tautological line bundles over noncommutative spaces — obtained out of a Fock-space construction of creation and annihilation operators — are thought of as total space algebras of principal circle bundles. A Gysin-like sequence in KK-theory can be used to compute KK classes of the total space algebras or as a way to define T-duality for noncommutative line bundles. Examples include the Irrational Rotation Algebra for quadratic irrationals and quantum lens spaces out of line bundles over weighted quantum projective spaces.