

---

**HEATH EMERSON**, University of Victoria

*Dirac classes and duality for isometric discrete abelian group actions*

An interesting K-homology class for the crossed-product  $C^*$ -algebra of a discrete group acting smoothly on a smooth compact manifold is suggested by the Baum-Connes apparatus; we call it the 'Dirac class'. In the first part of this talk we will describe (finite-summable) spectral triple representatives of Dirac classes when the group is abelian and the action is isometric. The commutativity of the group also implies that the Dirac class can be improved to a fundamental class, and in the second part of the talk we discuss progress on establishing KK-theoretic Poincaré duality for these examples, building on work initiated by A. Connes.