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Structural properties and classification of Cuntz-Pimsner algebras associated to C-correspondences over commutative C*-algebras*

Cuntz-Pimsner algebras were introduced by Pimsner in the '90s, as generalization of both Cuntz-Krieger algebras and crossed products by the integers. In this talk we discuss several regularities properties of Cuntz-Pimsner algebras arising from full, minimal, non-periodic, and finitely generated projective C*-correspondence over commutative C*-algebras. A large class of examples is obtained considering the set $\Gamma(V, \alpha)$ of continuous sections of a complex vector bundle on a compact metric space X, where left multiplication is given by a twist by a minimal homeomorphism $\alpha\colon X \to X$.

In the case of crossed products by minimal homeomorphisms, the orbit breaking subagebra, defined by I. Putnam, is a large subalgebra in the sense of N. C. Phillips. We show that for a large class of C^*-correspondences, the Cuntz-Pismner algebra $\mathcal{O}(\Gamma(V, \alpha))$ also contains a large subalgebras. We will discuss some properties that $\mathcal{O}(\Gamma(V, \alpha))$ and/or its large subalgebra have, focusing on properties needed for classification by the Elliott invariant, like nuclear dimension, $\mathcal{Z}$-stability, etc.

This is joint work with M. S. Adamo, D. Archey, M. Forough, M. Georgescu, J. A Jeong, and K. Strung.