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Free semigroupoid algebras

A free semigroupoid algebra is the WOT-closure of the algebra generated by a Toeplitz-Cuntz-Kreiger family of a graph. We obtain a structure theory for these algebras analogous to that of free semigroup algebra. We clarify the role of absolute continuity and wandering vectors. These results are applied to obtain a Lebesgue-von Neumann-Wold decomposition of TCK families, along with reflexivity, a Kaplansky density theorem and classification for free semigroupoid algebras. Several classes of examples are discussed and developed, including self-adjoint examples and a classification of atomic free semigroupoid algebras up to unitary equivalence. (This is joint work with Adam Dor-On and Boyu Li.)