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Cartan sub-C*-algebras, pseudogroups and orbifolds

A standard construction associates to a pseudogroup of partial homeomorphisms of a locally compact Hausdorff space a C*-algebra. When the groupoid of germs of the pseudogroup is Hausdorff, the C*-algebra which arises in this fashion can be characterized by the existence of a nice maximal abelian self-adjoint subalgebra, called a Cartan subalgebra. More precisely, this construction establishes an equivalence of categories between twisted étale locally compact Hausdorff effective groupoids and Cartan pairs. This is a C*-algebraic analogue of a well-known theorem of J. Feldman and C. Moore on Cartan subalgebras in von Neumann algebras. It had been anticipated by A. Kumjian in the early eighties. I shall survey these results and will present some special classes of Cartan pairs, among them those arising from orbifolds.