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C*-algebras Associated to Étale Groupoids

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After recalling some of the basic notions in the theory of étale groupoids and their C*-algebras, we will turn to the structure theory of the latter. In particular we will study the ideal structure and finiteness/pure infiniteness. This leads to a notion of paradoxical decomposition in groupoids, which can be studied by means of the so-called type semigroup. Finally, if time permits, I will briefly outline how the theory of groupoid C*-algebras is used in another direction, providing a unified approach to several types of rigidity questions.