Groupoid fibrations and their C*-algebras

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Fibrations of groupoids describe actions of groupoids on other groupoids by equivalences. A fibration from a topological groupoid L to another topological groupoid H is a functor $F\colon L \to H$ with some properties. The kernel of this functor is another topological groupoid G, called the fibre of F. We interpret L as a transformation groupoid "$G \rtimes H$" for an action of H on G by (partial) equivalences. Classical actions by automorphisms and groupoid extensions are particular cases of fibrations. Several properties, as for instance, (local) Hausdorffness or compactness and amenability are preserved by groupoid fibrations in the sense that L has the property if G and H have it.

Our main result shows that a crossed product by L can be written as an iterated crossed product, first by G and then by H, that is, $A \rtimes L \cong (A \rtimes G) \rtimes H$.

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