GROUPOID TECHNIQUES IN MATHEMATICS

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Abstract:

I will illustrate the usefulness of the notion of groupoid in various areas of mathematics. In the theory of di_erential equations, it is closely related to the notions of flows, foliations and Lie algebroids. In algebra, it goes along with the theory of inverse semigroups. In ergodic theory, it appears under the form of measured equivalence relations and provides crucial notions such as orbit equivalence and Mackey range. In probability theory, it occurs naturally in the theory of random walks. In functional analysis, it provides convenient models for von Neumann algebras and C*-algebras. It is also an important concept in noncommutative geometry.