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Algebras, groups and monoids determined by set-theoretic solutions of the Yang–Baxter equation

Set-theoretic solutions of the Yang–Baxter equation lead to fascinating classes of finitely presented algebras, groups and monoids. All of them are determined by a presentation of the form $\langle x_1, \ldots, x_n \mid R \rangle$, where R is a set of $n(n-1)/2$ relations, each of the form $x_i x_j = x_k x_m$. The purpose of the talk is to present the main known results on such algebras, groups and monoids, exhibiting both their structural and combinatorial properties.

Recent solutions of the fundamental problems concerning set theoretic solutions, obtained in a joint work with F. Cedo and E. Jespers, will be also presented.