## Braces and the Yang-Baxter equation

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## Abstract

The study of set-theoretic solutions of the Yang-Baxter equation, has been initiated by Drinfeld. Braces were introduced by Rump, as a tool to study non-degenerate involutive set-theoretic solutions of the Yang-Baxter equation. Soon the question whether there exists an algebraic structure, similar to the structure of a brace, to study non-degenerate non-involutive set-theoretic solutions was posed. The answer came from Guarnieri and Vendramin as they introduced skew braces. Finally, new set-theoretic solutions of the Yang-Baxter equation that are left or right non-degenerate were obtained by semi-braces, introduced by Catino, Colazzo, and Stefanelli.

In this talk, we will discuss these types of braces and show how we obtain solutions of the Yang-Baxter equation. Moreover, we will define the structure group corresponding to a left brace and mention several properties of this group.