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Schur covers of skew braces

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Abstract

The Yang-Baxter equation is a fundamental object in pure mathematics and physics. It arose from the work of the Nobel prize-winning physicist Yang on statistical mechanics. An absolutely fascinating family of solutions are the combinatorial solutions. In this context, skew braces are essential algebraic structures as they are equipped with a canonical combinatorial solution.

Despite their young age (2017), skew braces appear in different branches of mathematics such as algebra and number theory. Skew braces generalize simultaneously groups and radical rings. This implies that the intuition of many results concerning skew braces arises from group theory and ring theory.

In this talk I will introduce the basic algebraic notions of skew braces theory. If time permits, I will present how, inspired by the work of Schur on projective representations of groups, we constructed Schur coverings of skew braces.