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## A class of finite groups associated to the Yang-Baxter equation

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In 1992 Drinfeld posed the question of finding the set theoretic solutions of the Yang-Baxter equation. Recently, Gateva-Ivanova and Van den Bergh and Etingof, Schedler and Soloviev have shown a group theoretical interpretation of involutive non-degenerate solutions. Namely, there is a one-to-one correspondence between involutive non-degenerate solutions on finite sets and groups of *I*-type. A group of *I*-type is a group isomorphic to a subgroup of  $\mathbb{Z}^n \rtimes \text{Sym}_n$  so that the projection onto the first component is a bijective map.

We say that a finite group is involutive Yang-Baxter if it occurs as the projection onto the second component  $\text{Sym}_n$  of some group of *I*-type. It is known that every involutive Yang-Baxter group is solvable. We present some results supporting the converse of this property. More precisely, we characterize involutive Yang-Baxter groups by several means and use this characterization to prove that the class of Yang-Baxter groups contains, among others, finite abelian-by-cyclic group, finite nilpotent groups of class 2, and Sylow subgroups of a finite symmetric group. Furthermore the class of involutive Yang-Baxter groups is closed under direct and wreath products and Hall subgroups of involutive Yang-Baxter groups are involutive Yang-Baxter.

This is joint work with Ferran Cedó and Eric Jespers.