

## **Set-theoretic YBE: quantum algebras & universal R matrices.**

The theory of the parametric set-theoretic Yang-Baxter equation is established from a purely algebraic point of view. We first introduce certain generalizations of the familiar shelves and racks called parametric (p)-shelves and racks. These objects satisfy a parametric self-distributivity condition and lead to solutions of the Yang-Baxter equation. Novel, non-reversible solutions are obtained from p-shelf/rack solutions by a suitable parametric twist, whereas all reversible set-theoretic solutions are reduced to the identity map via a parametric twist. The universal algebras associated to both p-rack and generic parametric, set-theoretic solutions are also presented and the corresponding universal R-matrices are derived. The admissible universal Drinfel'd twist is constructed allowing the derivation of the general set-theoretic universal R-matrix.

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