

Jordan structures in mathematics and physics

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The aim of this paper is to offer an overview of the most important applications of Jordan structures inside mathematics and also to physics, up-dated references being included. For a more detailed treatment of this topic see - especially - the recent book Iordanescu [364w], where suggestions for further developments are given through many open problems, comments and remarks pointed out throughout the text.

Nowadays, mathematics becomes more and more nonassociative and my prediction is that in few years nonassociativity will govern mathematics and applied sciences.

Keywords: Jordan algebra, Jordan triple system, Jordan pair, JB-, JB*-, JBW-, JBW*-, JH*-algebra, Riccati equation, Riemann space, symmetric space, R-space, octonion plane, projective plane, Barbilian space, Tzitzeica equation, quantum group, Bäcklund-Darboux transformation, Hopf algebra, Yang-Baxter equation, KP equation, Sato Grassmann manifold, genetic algebra, random quadratic form.

Subjects: **Differential Geometry (math.DG)**; Mathematical Physics (math-ph); Rings and Algebras (math.RA)

MSC classes: 16T25, 17B60, 17C40, 17C50, 17C65, 17C90, 17D92, 35Q51, 35Q53, 44A12, 51A35, 51C05, 53C35, 81T05, 81T30, 92D10

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