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On the manifold of tripotents in JB^*-triples. (English)

Andrica, Dorin (ed.) et al., Contemporary geometry and topology and related topics. Proceedings of the 8th international workshop on differential geometry and its applications, Cluj-Napoca, Romania, August 19–25, 2005. Cluj-Napoca: Cluj University Press. 251-264 (2008).

A Jordan-Banach $*$-triple (JB^*-triple) is a complex Banach space Z whose unit ball $B(Z)$ is symmetric in the sense that is for every point $z \in B(Z)$ there is a biholomorphism S_z of $B(Z)$ such that $S_z^2 = ID_{B(Z)}$, $S_z(z) = z$ and $S'_z(z) = -Id_Z$ for the Fréchet derivative of S_z. JB^*-triples can be algebraically characterized as Banach spaces admitting a JB^*-triple product, that is a map $\{\cdot,\cdot,\cdot\} : Z \times Z \times Z \to Z$, satisfying certain axioms. A tripotent is an element $e \in Z$ such that $\{e, e, e\} = e \neq 0$. Tripotents are natural generalizations of partial isometries in C^*-algebras. The paper under review gives a survey on the results concerning the structure of tripotents as a direct real-analytic submanifold in a JB^*-triple and discusses some recent achievements.

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