Zbl pre05691316

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Weighted grids in complex Jordan* triples. (English)

Summary: Weighted grids are linearly independent sets $\{g_w : w \in W\}$ of signed tripotents in Jordan* triples indexed by figures W in real vector spaces such that $\{g_u g_v g_w\} \in \mathbb{C}g_{u-v+w} (= 0\, if\, \text{u - v + w} \notin W)$. They arise naturally as systems of weight vectors of certain abelian families of Jordan* derivations. Based on Neher's grid theory, a classification of association free non-nil weighted grids is given. As a first step beyond the setting of classical grids, the complete list of complex weighted grids of pairwise associated signed tripotents indexed by $\mathbb{Z}^2$ is established.

Keywords : grid; weight; Jordan* triple

Classification :
> ∗17C10 Structure theory of Jordan algebras
> 17B40 Automorphisms and other operators on Lie algebras
> 17C20 Simple and semisimple Jordan algebras