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The splittest Kac Superalgebra K_{10}

We present an isotope of the usual version of the Kac 10-dimensional Jordan superalgebra over a general ring of scalars (isomorphic to the original version when i and root $\sqrt{-2}$ are in the base ring, but not in characteristic 2), which we take as the "correct" split model for the simple superalgebra in all characteristics. This algebra has unit the sum of three reduced orthogonal idempotents. We exhibit a "quaternionic" model of the bimodule structure for this model and the standard one, as well as an "exterior" model for both the bimodule structure and the odd product. We give a reference table for all quadratic and triple products, and all inner derivations. We investigate the structure of the Grassmann envelope, proving directly that it is a linear Jordan algebra and obtaining the bizarre result that in characteristic 5 (but not otherwise) it is even the Jordan algebra of a cubic form. We discuss a general method (due to Benkart and Elduque) for proving that something is a quadratic Jordan algebra or superalgebra when it has a free $\mathbb{Z}$-form.