

DIHEDRAL ALGEBRAS

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In 2009 Ivanov provided a natural axiomatic framework that captures the Monster algebra inside an entire new family of algebras, now known as Majorana algebras. His work was inspired by Sakuma's celebrated classification of Moonshine-type Vertex Operator algebras generated by two Ising vectors. Within that framework Ivanov, Pasechnik, Seress, and Shpectorov were able to give a new proof of Sakuma's theorem. In 2013 Hall, Rehren, and Shpectorov introduced the more general class of Axial algebras which include, besides Majorana algebras, also commutative associative algebras, some Jordan algebras and perhaps other algebras that arise from mathematical physics. There is evidence that their methods could be applied to obtain Sakuma-type results for larger classes of Dihedral algebras (i.e. 2-generated Axial algebras). In this talk I shall expose those methods and discuss some work in progress which is part of a joint project with Franchi and Shpectorov.