

Majorana Representations of Triangle-Point Groups

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Majorana theory was introduced by A. A. Ivanov [1] in 2009 as the axiomatization of certain properties of the 2A-axial vectors of the 196,884-dimensional Griess algebra. Ivanov's work was inspired by a result of S. Sakuma [2] which reproved certain important properties of the Griess algebra in the context of vertex operator algebras. Majorana theory takes the key hypotheses of Sakuma's result to provide a powerful framework, independent of vertex operator algebras, in which to study the Griess algebra and other related objects.

The axioms of Majorana theory can be used to define and construct objects known as Majorana algebras and Majorana representations. In this talk, I will present my own work on Majorana representations of triangle-point groups. A triangle-point group is a group G which is generated by three involutions a, b and c such that a and b commute and such that the product of any two elements of $T := a^G \cup b^G \cup c^G \cup (ab)^G$ has order at most 6. They play an important role in the study of the Monster group and the Monster graph.

References

- [1] A. A. Ivanov *The Monster Group and Majorana Involutions*, Cambridge Tracts in Mathematics **176**, Cambridge University Press, 2009.
- [2] S. Sakuma, 6-transposition property of τ -involutions of vertex operator algebras. *Int. Math. Res. Not.* (2007).