Brauer category and fundamental theorems of classical invariant theory

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Abstract:

A strict monoidal category, referred to as the Brauer category, is introduced and applied to study the invariant theory of the orthogonal and symplectic groups. Full tensor functors are constructed from the Brauer category to the categories of tensor representations of these groups. This leads to a generalization of the first and second fundamental theorems of invariant theory to a category theoretical setting, that enables us to construct presentations for the endomorphism algebras of the tensor representations. This is joint work with Gus Lehrer.

References

1) G I Lehrer and R B Zhang, The second fundamental theorem of invariant theory for the orthogonal group, Annals of Mathematics **176** (2012) 2031-2054.
2) G I Lehrer and R B Zhang, The *Brauer Category* and Invariant Theory. arXiv:1207.5889.