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Possible Symmetry of S-matrix Associated with Higher Graded Lie Superalgebra

Abstract

In relativistic quantum field theory, it is known that symmetries described by Lie algebras are subject to certain constraints. Extending to Lie superalgebras, which generalize Lie algebras, broadens the range of possible symmetries in quantum field theory. However, despite further extensions of Lie superalgebras, such symmetries have not yet been explored within the framework of quantum field theory. In this presentation, we report on our research findings regarding the possible symmetries described by higher graded Lie superalgebras as extensions of Lie superalgebras in quantum field theory.