Spinor Representations of Lorentz Transformations

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Abstract

Spinors are analogous to vectors and tensors but differ in the way they transform. We mention the four parts of the Lorentz group, the SL(2,C) group and show that the correspondence between the two is a generalization of the homomorphism between the $O(3)$-three dimensional rotation group and the SU(2,C) group. We discuss what a group representation is and show that SL(2,C) is a representation of the proper orthochronous Lorentz group.We introduce the entity *Spinors*,acted upon by the SL(2,C) matrices and their properties.

References

(1) A O Barut,*Electrodynamics and Classical Theory of Fields and Particles* (New York: Macmillan, 1964)
(2) J Aharoni,*The Special Theory of Relativity* (Oxford: Clarendon Press, 1965)
(3) Lecture Notes on *"Introduction to Lorentz Spinors"* by David Williams, University of Michigan. URL:http://www-personal.umich.edu/ williams/notes/spinor.pdf