

Spin fields from N=1 worldline particle
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Abstract

The worldline, as opposed to the RNS string, is not conformally invariant. Thus the spin fields that create the R sector from the NS ground state cannot be carried over to a 1-dimensional source space. On the other hand in the RNS formulation Ramond-Ramond background are difficult to construct. Working in 4 dimensions, we attempt to overcome these issues from the perspective of the worldline by suggesting an associative algebra with chiral, antichiral generators and imposing that the extended Pauli matrices for the Clifford algebra are multiplied with these generators.

BRST cohomology of the worldline and the cohomology of the chiral supercharge will be isomorphic in ghost degree zero, both for the 1-particle states (R-fields) and the 2-particle states (RR-fields) in the Hilbert space. We study deformations of the BRST differential and find from the request of nilpotency the linearized equations of motion of the RR-fields.

This is based on a work with Ivo Sachs.